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

July 31, 2008

10 CFR 52.79

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

In the Matter of) Docket No. 52-014 and 52-015
Tennessee Valley Authority)

BELLEFONTE COMBINED LICENSE APPLICATION – RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION – PROCESS AND EFFLUENT RADIOLOGICAL MONITORING INSTRUMENTATION AND SAMPLING SYSTEMS

Reference: Letter from Ravindra Joshi (NRC) to Andrea L. Sterdis (TVA), Request for Additional Information Letter No. 043 Related to SRP Section 11.05 for the Bellefonte Units 3 and 4 Combined License Application, dated June 19, 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 Thomas Spink at 1101 Market Street, LP5A, Chattanooga, Tennessee 37402-2801, by telephone at (423) 751-7062, or via email at tespink@tva.gov.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 31 day of July, 2008.

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

Enclosure
cc: See Page 2

DO85
NRO

cc: (w/ Enclosure)

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Enclosure
TVA letter dated July 31, 2008
RAI Responses

Responses to NRC Request for Additional Information letter No. 043 dated June 19, 2008
(5 pages, including this list)

Subject: Representative sampling for gaseous and effluent liquids in the Final Safety Analysis Report

RAI Number	Date of TVA Response
11.05-01	This letter – see following pages
11.05-02	This letter – see following pages

Associated Additional Attachments / Enclosures	Pages Included
None	

Enclosure
TVA letter dated July 31, 2008
RAI Responses

NRC Letter Dated: June 19, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 11.05-01

SRP acceptance criteria 2.A. in SRP Section 11.5 states that sampling from ducts and stacks should be consistent with ANSI/HPS N13.1-1999. Please clarify whether the applicant has committed in FSAR Section 11.5.4.2 to follow ANSI N-13.1 -1999 for system design, testing, and operational sampling to ensure representative sampling in gaseous ducts. If the applicant is committing to these aspects of the standard, please revise the FSAR to so state; if not, please provide a detailed description of how the applicant intends to ensure representative sampling for gaseous systems and releases, and revise the FSAR to contain this description.

BLN RAI ID: 0522

Section 11.5 of the AP1000 DCD, Revision 16, states, "The radiation monitoring system is designed in accordance with ANSI N13.1-1969." The sampling system design requirements and the methodology to obtain samples are significantly different between the 1969 and 1999 versions of the standard. Thus, the 1999 standard cannot be effectively used with equipment designed and installed in accordance with the 1969 standard. FSAR Subsection 11.5.4.2 will be revised to commit to the 1969 standard for testing and sampling of the gaseous effluent streams. The statement in FSAR 11.5.4.2 regarding the monitoring of unfiltered ducts will also be revised to clarify the commitment to ANSI N13.1-1969. Reference 201 will be updated to reflect the 1969 standard. In addition, Regulatory Guide 1.21, position C6 conformance in FSAR Appendix 1AA will be revised to remove the exception and to show conformance with the RG position C6.

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

ASSOCIATED BLN COL APPLICATION REVISIONS:

1. COLA Part 2, FSAR. Chapter 11, Subsection 11.5.4.2 will be revised to add the following paragraph after the first paragraph. (Note that the first paragraph will be revised by the response to RAI 11.05-02, this letter).

Testing and obtaining representative samples using the radiation monitors described in DCD Subsection 11.5 will be performed in accordance with ANSI N13.1 (Reference 201).

2. Revise COLA Part 2, FSAR. Chapter 11, Subsection 11.5.4.2 second paragraph from:

For obtaining representative samples in unfiltered ducts, isokinetic probes are used as recommended by ANSI N13.1 (Reference 201).

To read:

For obtaining representative samples in unfiltered ducts, isokinetic probes are tested and used in accordance with ANSI N13.1 (Reference 201).

3. COLA Part 2, FSAR. Chapter 11, Subsection 11.5.8, Reference 201 will be revised from:

ANSI N13.1-1999, "Sampling and Monitoring Releases of Airborne Radioactive Substances from the Stacks and Ducts of Nuclear Facilities."

To read:

ANSI N13.1-1969, "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities."

4. COLA Part 2, FSAR. Chapter 1, Appendix 1AA, conformance with Regulatory Guide 1.21 Rev. 1, C.6 will be revised from:

C.6 Exception ANSI N13.1-1999 is used.

To read:

C.6 Conforms

ASSOCIATED ATTACHMENTS/ENCLOSURES:

None

Enclosure
TVA letter dated July 31, 2008
RAI Responses

NRC Letter Dated: June 19, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 11.05-02

With regard to FSAR Section 11.5.4.2, Representative Sampling, please provide a detailed description of how the applicant intends to ensure representative sampling of process and effluent liquids; please revise the FSAR to contain this description, or justify its exclusion. Such descriptions may include referencing appropriate sections of ANSI N.42.18 – 2004, Regulatory Guides 1.21, 4.1 and 4.15, and any corporate standard operating procedures the applicant uses to ensure representative sampling of process and effluent liquids.

BLN RAI ID: 0523

BLN RESPONSE:

FSAR Subsection 11.5.4.2 will be revised to add a description of the methods used by the plant to obtain representative samples of process and effluent liquids. The information being added pertains to specific site and program aspects of process and effluent liquid monitoring. Sample locations and other physical characteristics of the equipment and components are design related. Representative sampling discussion, as it relates to plant design, is applicable to the AP1000 design certification.

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

ASSOCIATED BLN COL APPLICATION REVISIONS:

1. COLA Part 2, FSAR Chapter 11, Subsection 11.5.4.2, will be revised to insert the following new paragraphs immediately following the Subsection heading:

Representative samples are obtained from well-mixed streams or volumes of effluent liquid through the use of proper sampling equipment, proper location of sampling points, and the development and use of sampling procedures. The recommendations of ANSI N 42.18 (Reference 203) are considered for the selection of instrumentation specific to the continuous monitoring of radioactivity in liquid effluents.

Sampling of effluent liquids is consistent with guidance in Regulatory Guide 1.21. When practical, effluent releases are batch-controlled, and prior to sampling, large volumes of liquid waste are mixed, in as short a time span as practicable, so that solid particulates are uniformly distributed in the liquid volume. Sampling and analysis is performed, and release conditions set, before release. Sample points are located to minimize flow disturbance due to fittings and other characteristics of equipment and components. Sample lines are flushed consistent with plant procedures to remove sediment deposits.

Representative sampling of process effluents is attained through sample and monitor locations and methods and criteria detailed in plant procedures.

Composite sampling is employed to analyze for hard to measure radionuclides and to monitor effluent streams that normally are not expected to contain significant amounts of radioactive contamination. Composite liquid samples are collected in proportion to the volume of each batch of effluent release. The composite is thoroughly mixed prior to analysis. Collection periods for composites are as short as practicable and periodic checks are performed to identify changes in composite samples. When grab samples are collected instead of composite samples, the time of the sample, location, and frequency are considered to provide a representative sample of the radioactive materials.

2. COLA Part 2, FSAR Chapter 11, Subsection 11.5.8 will be revised to add:

203. ANSI N42.18-2004, "Specification and Performance of On-Site Instrumentation for Continuous Monitoring Radioactivity in Effluents."

ASSOCIATED ATTACHMENTS/ENCLOSURES:

None