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

December 8, 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 – RAW WATER SYSTEMS

Reference:

1) Letter from Tanya Simms (NRC) to Andrea L. Sterdis (TVA), Request for Additional Information Letter No. 103 Related to SRP Section 09.02.11 for the Bellefonte Units 3 and 4 Combined License Application, dated August 08, 2008

2) Letter from Andrea L. Sterdis (TVA) to Document Control Desk (NRC), Response to Request for Additional Information – Raw Water Systems, dated September 4, 2008

This letter provides the Tennessee Valley Authority's (TVA) revised response to the Nuclear Regulatory Commission's (NRC) request for additional information (RAI) item included in the reference letters. This revised response to RAI 01-09 is submitted as requested by the NRC following verbal clarifications of the requested information.

A supplemental response to the 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 8th day of Dec, 2008.

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

Enclosure
cc: See Page 2

D085
NRO

cc: (Enclosures)
E. Cummins, Westinghouse
S. P. Frantz, Morgan Lewis
M. W. Gettler, FP&L
R. C. Grumbir, NuStart
P. S. Hastings, NuStart
P. Hinnenkamp, Entergy
M. C. Kray, NuStart
D. Lindgren, Westinghouse
G. D. Miller, PG&N
M. C. Nolan, Duke Energy
N. T. Simms, Duke Energy
T. Simms, NRC/HQ
G. A. Zinke, NuStart

cc: (w/o Enclosure)
B. Anderson, NRC/HQ
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
J. M. Sebrosky, NRC/HQ

Enclosure
TVA letter dated December 8, 2008
RAI Response

Response to NRC Request for Additional Information letter No. 103 dated August 06, 2008
(4 pages, including this list)

Subject: Raw Water System in the Final Safety Analysis Report

RAI Number	Date of TVA Response
01-09	September 4, 2008 Supplemented by this letter – see following pages; supplemental information provided in this letter replaces the original response in its entirety.

Associated Additional Attachments / Enclosures	Pages Included
None	

Enclosure
TVA letter dated December 8, 2008
RAI Response

NRC Letter Dated: August 6, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 01-09

Regulatory guidance for the evaluation of the Raw Water System is found in Standard Review Plan (SRP) Section 9.2.1, "Station Service Water System." The SRP acceptance criteria are based on meeting General Design Criterion (GDC) 4 as it relates to structures, systems, and components (SSCs) important to safety being designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing and postulated accidents, including loss-of-coolant accidents. Explain how FSAR Section 9.2.11, "Raw Water System," addresses protection of SSCs important to safety from the effects of flooding from a RWS component failure (i.e., explain why flooding due to RWS failure will not result in detrimental effects on SSCs important to safety).

BLN RAI ID: 2415

BLN RESPONSE:

As described in FSAR Subsection 9.2.11, the Raw Water System (RWS) provides river water for makeup to the natural draft and mechanical draft cooling tower basins and feeds the demineralized water treatment system. The RWS also provides the backup raw water to the fire water storage tanks and an alternate supply of cooling water to the turbine building closed cooling system heat exchangers. None of the systems interfacing with RWS (i.e., Circulating Water System (CWS), Standby Service Water System (SWS), demineralized water treatment and turbine building closed cooling water system (TCS)) have a safety related function.

The potential failures of the RWS and the corresponding impact on structures, systems, and components (SSCs) important to safety are describe below.

1. Failure of RWS piping connection to CWS and SWS.

   The RWS, CWS and SWS are located in the intake area and the yard. A break in the RWS is bounded by a break in the CWS. DCD Subsection 3.4.1.1.1 indicates that failure of the cooling tower, the service water or circulating water piping under the yard could result in a potential flood source. However, these potential sources are located far from safety-related structures and the consequences of a failure in the yard would be enveloped by the analysis described in DCD Subsection 10.4.5 for failure of the CWS. Site grading will carry water away from safety-related buildings (Refer to FSAR Figure 2.4.2-202, Site Grading and Drainage Plan).

2. Failure of the RWS piping connection to the Demineralized Water System.

   The RWS piping connection to the Demineralized Water Treatment System (DTS) is shown on FSAR Figure 9.2-201. This connection is located above the floor of the turbine building base slab. Due to the size of the system piping, flooding of the turbine building resulting from a break in the RWS is less severe than flooding resulting from a break in the circulating water system. Refer to DCD Subsections 3.4.1.2 and 10.4.5.2.3 for a description of flooding due to the circulating water system. The effects of flooding due to a RWS failure will not result in detrimental effects on safety-related equipment since there is no safety-related equipment in the turbine building and the base slab of the turbine building is located at grade elevation. Water from a system rupture will run out of the building through a relief panel in the turbine

building west wall before the level could rise high enough to cause damage. Site grading will carry the water away from safety-related buildings (Refer to FSAR Figure 2.4.2-202, Site Grading and Drainage Plan).

The component cooling water and service water components on elevation 100'-0", which provide the regulatory treatment of nonsafety-related systems important to support for the normal residual heat removal system, are expected to remain functional following a flooding event in the turbine building since the pump motors and valve operators are above the expected flood level.

3. Failure of the RWS piping connection to the fire water storage tanks.

   This connection has a normally closed valve as shown on FSAR Figure 9.2-201. As described in DCD Subsection 3.4.1.1.1, this is a potential external flooding source in the yard and is located far from safety-related structures. The consequences of a failure in the yard would be enveloped by the analysis described in DCD Subsection 10.4.5 for failure of the CWS. Site grading will carry the water away from safety-related buildings (Refer to FSAR Figure 2.4.2-202, Site Grading and Drainage Plan).

4. Failure of RWS piping connection to the turbine building closed cooling water system.

   This connection has a normally closed valve as shown on FSAR Figure 9.2-201. Due to the size of the system piping, flooding of the turbine building resulting from a break in the RWS is less severe than flooding resulting from a break in the circulating water system. Refer to DCD Subsections 3.4.1.2 and 10.4.5.2.3 for a description of flooding due to the circulating water system. The effects of flooding due to a RWS failure will not result in detrimental effects on safety-related equipment since there is no safety-related equipment in the turbine building and the base slab of the turbine building is located at grade elevation. Water from a system rupture will run out of the building through a relief panel in the turbine building west wall before the level could rise high enough to cause damage. Site grading will carry the water away from safety-related buildings (Refer to FSAR Figure 2.4.2-202, Site Grading and Drainage Plan).

   The component cooling water and service water components on elevation 100'-0", which provide the regulatory treatment of nonsafety-related systems important to support for the normal residual heat removal system, are expected to remain functional following a flooding event in the turbine building since the pump motors and valve operators are above the expected flood level.

Therefore, failure of the RWS is bounded by the failure of the interfacing systems analyzed in the DCD and the FSAR. Failure of the RWS or its components will not affect the ability of safety-related systems to perform their intended function.

The FSAR will be revised to include the results of above failure analyses.

This response is PLANT SPECIFIC.

ASSOCIATED BLN COL APPLICATION REVISIONS:

COLA Part 2, FSAR. Chapter 9, Section 9.2.11.1, second paragraph will be revised from:

Failure of the RWS or its components does not affect the ability of safety-related systems to perform their intended function.

To read:

Failure of the RWS or its components does not affect the ability of safety-related systems to perform their intended function. Potential flooding due to failure of the RWS is bounded by the failure of the interfacing systems analyzed in the DCD and the FSAR and does not result in detrimental effects on SSCs important to safety.

ATTACHMENTS/ENCLOSURES:

None