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

March 15, 2010

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

BELLEFONTE COMBINED LICENSE APPLICATION – RESPONSE TO SAFETY EVALUATION REPORT WITH OPEN ITEMS FOR CHAPTER 9, "AUXILIARY SYSTEMS"

Reference: Letter from Stephanie Coffin (NRC) to Andrea L. Sterdis (TVA), Bellefonte Units 3 and 4 Safety Evaluation Report with Open Items Chapter 9, "Auxiliary Systems", dated November 20, 2009

This letter provides the Tennessee Valley Authority's (TVA) site specific response to the Nuclear Regulatory Commission's (NRC) Open Item (OI) 09.02-01 included in the subject Safety Evaluation Report (SER).

A response to NRC OI 09.02-01 is addressed in the enclosure which does not identify any associated changes that will be made in a future revision of the BLN application. The enclosure identifies that the NRC standard Open Item responses were addressed by Southern Nuclear Operating Company on the Vogle Electric Generating Plant Units 3 and 4 docket as contained in letter ND-09-2078 (ADAMS# ML100040142).

If you should have any questions, please contact Tom 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 15th day of March 2010.

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

Enclosure
cc: See Page 2

D085
NRO

Enclosure
TVA letter dated March 15, 2010
Open Item Response

Responses to NRC Chapter 9 Safety Evaluation Report with Open Items letter dated November 20, 2009 (3 pages, including this list).

Subject: Auxiliary Systems in the Final Safety Analysis Report

Open Item Number	Response
09.01-01	Standard – ND-09-2078, Response to Chapter 9 SER Open Items, dated 12/30/2009
09.01-02	Standard – ND-09-2078, Response to Chapter 9 SER Open Items, dated 12/30/2009
09.01-03	Standard – ND-09-2078, Response to Chapter 9 SER Open Items, dated 12/30/2009
09.01-04	Standard – ND-09-2078, Response to Chapter 9 SER Open Items, dated 12/30/2009
09.02-01	Site Specific - This letter – see following pages
09.02-02	Standard – ND-09-2078, Response to Chapter 9 SER Open Items, dated 12/30/2009

NRC Letter Dated: November 20, 2009

NRC Review of Final Safety Analysis Report

NRC SER OI NUMBER: Open Item 9.2-1 (RAI 9.02.01-8) (eRAI 4108)

There is, however, a possibility of external flooding caused by severe environmental events such as hurricanes or tornadoes. The staff has evaluated the RWS intake structure described in BLN COL FSAR Section 9.2.11.2.2, "Component Description," and concluded that the failure of the intake structure would not impact the ability of safety-related systems to perform their intended functions. The applicant is currently performing an evaluation of the PMF, the results of which will be available in December 2009. In addition, review of Sections 3.3.2, 3.4.2, and 3.5.3 in the AP1000 DCD Rev. 17 FSAR showed that an additional one foot flood level on top of Probable Maximum Flood (PMF) could result as a consequence of failure of water tanks in the radwaste building during a tornado or hurricane event (see **DCD OI-SRP3.7.2-SEB1-02).** Under this scenario, the RWS pumps and ancillary raw water pumps will likely not function well as they will be emerged in water. The site-specific PMF level was addressed in BLN COL FSAR Section 2.4.1. The resolution of hydrologic engineering issues is identified as **Open Item 2.4-1**. The staff cannot come to a conclusion regarding the acceptability of the intake structure until Open Item 2.4-1 is resolved. This is **Open Item 9.2-1.**

BLN RAI/OI ID: 3980

BLN RESPONSE:

DCD Section 3.2 classifies the RWS as nonsafety-related for all its structures, subsystems and components. As provided in the open item, the failure of the intake structure, i.e. Raw Water Intake Pumping Station, would not impact the ability of safety-related systems to perform their intended functions. The structure design features referenced in Subsections 3.3.2, 3.4.2, and 3.5.3 as described in the FSAR satisfy the appropriate 10 CFR 50 Appendix A General Design Criteria and Standard Review Plan guidance for the applicable structures. The FSAR provides the information in accordance with Regulatory Guide 1.206 as it relates to these structures.

The regulatory basis provided in the General Design Criteria and Standard Review Plan do not pertain to nonsafety-related, non-RTNSS systems with the exception that nonsafety-related structures are not to impact the safe and reliable operation of safety-related structures, systems or components. Regulatory criteria could not be identified that requires the Raw Water Intake Pumping Station as detailed in FSAR Section 9.2.11 and Subsection 2.4.1.2.3.2 to be evaluated as able to withstand a PMF plus the coincident impact of a tank failure.

The NRC open item was based on FSAR information current at the time the Chapter 9 SER with open items was issued (November 20, 2009). Since that time the re-verification of the probable maximum flood (PMF) calculations have been completed and provide information to clarify the impact of a PMF on site structures. This information was provided to the NRC on January 15, 2010 in a letter from Jack A. Bailey to the Document Control Desk and contains proposed changes to BLN FSAR Sections 2.4.1, 2.4.2, and 2.4.3. These COLA changes will be incorporated in a future revision of the BLN COLA (ADAMS # ML100200617).

The revised FSAR Subsection 2.4.2.2 conclusion states "The maximum flood level at the BLN is elevation 625.7 ft. This elevation would result from the probable maximum precipitation (PMP) critically centered on the watershed as described in FSAR Subsection 2.4.3. Coincident wind waves would create maximum waves of 5.6 ft. (trough to crest) and produce maximum flood

levels of elevation 627.0 ft., including wind wave setup and run-up. The BLN safety-related structures are located at elevation 628.6 ft., which is above the worst potential flood considerations."

The RWS pumps and ancillary raw water pumps are located at the Raw Water Intake Pumping Station on the deck at elevation 627 ft. The mounting of the motors is above this elevation and therefore this equipment will not be submerged and will be available to support normal plant operation when required.

The failure of the Fire Water Storage tank, ~460,000 gallons, and resulting impact on safety related structures has been analyzed by Westinghouse and provided in a revised response to DCD OI-SRP3.4.1-RHEB-02. This analysis indicates that failure of the Fire Water Storage tank will result in a water depth of 2.2 inches at the Nuclear Island which is approximately 320 ft. from the tank.

The site hydrologic description is provided in FSAR Section 2.4.1.1. FSAR Figure 1.1-202, Site Map, which is a scaled topographical map for the BLN site. The distance from the closest Fire Water Storage Tank to the Raw Water Intake Pumping Station is greater than 1500 feet, and the level increase at this location due to a large tank failure will therefore be minimal. The failure of the monitor tanks in the Radwaste Building is being addressed by Westinghouse in response to DCD OI-SRP3.7.2-SEB1-02. The impact of a monitor tank failure (~15,000 gallon) on the Raw Water Intake Pumping Station would be bound by the impact of the Fire Water Storage Tank failure.

In conclusion the Raw Water Intake Pumping Station is designed to be highly reliable and perform in support of the RWS as detailed in FSAR Section 9.2.11 and 2.4.1.2.3.2. There is no regulatory basis to consider coincident design basis events such as the PMF and a tornado missile induced tank failure. Additionally, the distance of the tanks in question to the intake pumping station (RWS pumps and ancillary raw water pumps) is such that there would be minimal effect on flood levels at the intake.

This response is PLANT-SPECIFIC.

ASSOCIATED BLN COL APPLICATION REVISIONS:

None

ASSOCIATED ATTACHMENTS/ENCLOSURES:

None