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

May 26, 2009

10 CFR 52.79

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

In the Matter of) Docket Nos. 52-014 and 52-015
Tennessee Valley Authority)

BELLEFONTE COMBINED LICENSE APPLICATION – RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION – FLOW-ACCELERATED CORROSION PROGRAM

Reference: 1) Letter from Brian Anderson (NRC) to Andrea L. Sterdis (TVA), Request for Additional Information Letter No. 018 Related to SRP Section 10.03 for the Bellefonte Units 3 and 4 Combined License Application, dated May 13, 2008.

2) Letter from Andrea L. Sterdis (TVA) to NRC Document Control Desk, Response to Request for Additional Information – Flow-Accelerated Corrosion Program for the Bellefonte Units 3 and 4 Combined License Application, dated June 27, 2008.

This letter provides supplemental information to the Tennessee Valley Authority (TVA) response (Reference 2) to the Nuclear Regulatory Commission (NRC) request for additional information (RAI) items included in the Reference 1 letter. The additional information addresses items related to the flow accelerated corrosion program as discussed during a telecom on May 14, 2009.

A response to each NRC request in the subject letter is addressed in the enclosure and any associated changes that will be made in a future revision of the BLN application.

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 26th day of May, 2009.

Sincerely,

Jack A. Bailey

Jack A. Bailey
Vice President, Nuclear Generation Development
Nuclear Generation Development & Construction

D085
NRO

Enclosure
cc: See page 3

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

cc: (w/o Enclosure)
M. M. Comar, 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. Reister, DOE/PM
L. Reyes, NRC/RII
T. Simms, NRC/HQ
J. M. Sebrosky, NRC/HQ

Enclosure
TVA letter dated May 26, 2009
RAI Responses

Responses to NRC Request for Additional Information letter No. 018 dated May 13, 2008
(5 pages including this page)

Subject: Flow Accelerated Corrosion Program

RAI Number	Date of TVA Response
10.03.06-01	June 27, 2008; Revised by this letter – see following pages
10.03.06-02	June 27, 2008; Revised by this letter – see following pages
10.03.06-03	June 27, 2008; Revised by this letter – see following pages

Attachments / Enclosures	Pages Included
None	

Enclosure
TVA letter dated May 26, 2009
RAI Responses

NRC Letter Dated: May 13, 2008

NRC Review of Final Safety Analysis Report

NRC RAI Number: 10.03.06-01

Standard COL Item 10.1-1, "Erosion-Corrosion Monitoring", is identified in FSAR Table 1.8-202 as a COL Holder item, and FSAR Section 10.1 provides a general description of the Bellefonte Units 3&4 flow-accelerated corrosion (FAC) program. To address the FAC concerns (originally identified as erosion-corrosion) discussed in Generic Letter 89-08, please discuss TVA's implementation schedule for the detailed program. What FAC program activities will be conducted during the plant construction phase, and what is the schedule for those activities.

BLN RAI ID:

BLN RESPONSE:

Per discussion on May 14, 2009, the original response is revised to read:

The determination of FAC susceptible piping and components will be performed as design information and as-built field installation information is available with all systems and components evaluated for susceptibility prior to fuel load. The highly susceptible system piping and/or components deemed high risk of failure due to FAC will be identified for baseline testing prior to startup. Risk will be based on susceptibility to FAC and plant/personnel safety impact. For other piping, nominal pipe dimensions may be used in the computer analysis until actual baseline wall thickness measurements are obtained. The FAC Program as it relates to ASME Section XI pre-service baseline testing will begin approximately six (6) months prior to fuel load.

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 May 26, 2009
RAI Responses

NRC Letter Dated: May 13, 2008

NRC Review of Final Safety Analysis Report

NRC RAI Number: 10.03.06-02

Due to factors such as wall thickness tolerance in pipe fabrication and wall thinning due to bending, preservice measurements of as-built components considered susceptible to flow accelerated corrosion (FAC) are needed to accurately detect and assess inservice degradation. Some of the complications resulting from a lack of baseline thickness information are discussed in EPRI NSAC-202L-R2, the industry guideline document referenced in SRP Section 10.3.6. To demonstrate that an effective, long term FAC monitoring program is in place to address concerns discussed in NRC Generic Letter 89-08, please confirm that the program for erosion/corrosion and FAC monitoring will include preservice thickness measurements of as-built considered susceptible to FAC, and that these measurements will use grid locations and measurement methods most likely to be used for inservice inspection according to industry guidelines. In addition, please describe how these program criteria are documented in the COL application.

BLN RAI ID:

BLN RESPONSE:

Per discussion on May 14, 2009, the original response is revised to read:

The site flow accelerated corrosion program is based on EPRI NSAC-202L-R3. The program requires a grid layout for obtaining consistent pipe thickness measurements when using Ultrasonic Test Techniques. The FAC program obtains actual thickness measurements for highly susceptible FAC locations for new lines as defined in EPRI NSAC-202L-R3. At a minimum, a CHECWORKS type Pass 1 Analysis is used for low susceptible FAC locations and a CHECWORKS type Pass 2 Analysis for highly susceptible FAC locations will be considered. To determine wear of piping and components where operating conditions are inconsistent or unknown the guidance provided in EPRI NSAC-202L-R3 is used to determine wear rates. FSAR Section 10.1.3.1 will be modified to reflect using the guidance of EPRI NSAC-202L-R3 and industry operating experience in the generation of flow accelerated program.

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

ASSOCIATED BLN COL APPLICATION REVISIONS:

1. In Revision 1, the COLA Part 2, FSAR Subsection 10.1.3.1, last sentence of the paragraph was revised from:

In addition, the FAC monitoring program considers the information of Generic Letter 89-08 and industry guidelines.

To read:

In addition, the FAC monitoring program considers the information of Generic Letter 89-08, EPRI NSAC-202L-R3, and industry operating experience. The program requires a grid layout for obtaining consistent pipe thickness measurements when using Ultrasonic Test Techniques. The FAC program obtains actual thickness measurements for highly susceptible FAC locations for new lines as defined in EPRI NSAC-202L-R3. At a minimum, a Pass 1 Analysis is used for low susceptible FAC locations and a Pass 2 Analysis for highly susceptible FAC locations will be considered. To determine wear of piping and components where operating conditions are inconsistent or unknown the guidance provided in EPRI NSAC-202L is used to determine wear rates.

In a future revision, the above revised material will be further revised from:

At a minimum, a Pass 1 Analysis is used for low susceptible FAC locations and a Pass 2 Analysis for highly susceptible FAC locations will be considered.

To read:

At a minimum, a CHECWORKS type Pass 1 Analysis is used for low susceptible FAC locations and a CHECWORKS type Pass 2 Analysis for highly susceptible FAC locations will be considered.

2. COLA Part 2, FSAR Section 10.1, will be further revised to include a new Subsection 10.1.4, References, following Subsection 10.1.3:

Add the following after DCD Subsection 10.1.3:

10.1.4 References

201. EPRI NSAC-202L-R3, *Recommendations for an Effective Flow-Accelerated Corrosion Program (NSAC-202L-R3),* Electric Power Research Institute (EPRI) Technical Report 1011838, Palo Alto, CA, 2006.

ATTACHMENTS/ENCLOSURES

None

Enclosure
TVA letter dated May 26, 2009
RAI Responses

NRC Letter Dated: May 13, 2008

NRC Review of Final Safety Analysis Report

NRC RAI Number: 10.03.06-03

Subsection 10.1.3.1.1 of the Bellefonte FSAR states that the analytical method predicts the wear rate and the estimated time until a component must be re-inspected, repaired, or replaced. To ensure that the FAC concerns (originally identified as erosion-corrosion) discussed in NRC Generic Letter 89-08 are addressed in the application, please identify for components designed to the ASME Code Section III the industry guidelines or established procedure for determining the minimum allowable wall thickness at which the component must be repaired or replaced.

BLN RAI ID: 0360

BLN RESPONSE:

Per discussion on May 14, 2009, the original response is revised to read:

The Flow Accelerated Corrosion Program will be based on EPRI Recommendations for an Effective Flow Accelerated Corrosion Program (NSAC-202L-R3) and operating plant experience. A computer program, CHECWORKS (FAC) and / or equivalent will be used to predict FAC in single and two-phase power piping systems which can be modeled. Susceptible-Not-Modeled lines will be addressed per EPRI recommendations.

The CHECWORKS or equivalent program provides statistical analysis of wall thinning based on field measurements. Based on these analyses, inspection intervals are set for upcoming outages and replacement or repair performed based on field confirmation.

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