



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

September 2, 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

**BELLEFONTE COMBINED LICENSE APPLICATION – RESPONSE TO REQUEST FOR
ADDITIONAL INFORMATION – HUMAN FACTORS ENGINEERING**

- Reference: 1) Letter from Brian Anderson (NRC) to Andrea Sterdis (TVA), Request for Additional Information Letter No. 079 Related to SRP Section 18.02 for the Bellefonte Units 3 and 4 Combined License Application, dated July 18, 2008.
- 2) Letter from Robert Sisk (Westinghouse) to NRC, AP1000 Responses to Request for Additional Information (SRP18), dated May 28, 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 (Reference 1).

A response to the NRC request in the subject letter (Reference 1) is addressed in the enclosure which does not identify any associated changes to 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 pmray@tva.gov.

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

Executed on this 2nd day of Sep, 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: (w/Enclosures)

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R. Register, DOE/PM
L. Reyes, NRC/RII
J. M. Sebrosky, NRC/HQ

Enclosure
TVA letter dated September 2, 2008
RAI Response

Response to NRC Request for Additional Information letter No. 079 dated July 18, 2008
(4 pages, including this list)

Subject: Human Factors Engineering in the Final Safety Analysis Report

<u>RAI Number</u>	<u>Date of TVA Response</u>
18-03	This letter – see following pages

<u>Associated Additional Attachments / Enclosures</u>	<u>Pages Included</u>
None	

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NRC Letter Dated: July 18, 2008

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 18-03

The applicant provided information in BLN COL 18.2-2 to resolve COL information item 18.2-2. COL information item 18.2-2 states:

"The Combined License applicant referencing the AP1000 certified design is responsible for designing the emergency operations facility, including specification of the location and communication with the facility, in accordance with the AP1000 human factors engineering program."

The action item indicates the EOF human factors design will be in accordance with the AP1000 program. This is acceptable to the staff. However, Westinghouse and the COL applicants are working towards establishing a graded application of the AP1000 HFE program to address this COL action item as described in the following reports:

- APP-OCS-GGR-110-P, "AP1000 Technical Support Center and Emergency Operations Facility Work Shop," revision 1, in February 2008
- APP-GW-GLR-136, "AP1000 Human Factors Program Implementation for the Emergency Operations Facility and Technical Support Center," revision 1, issued October 26, 2007 (TR-136)

It is presumed that Bellefonte, as the RCOL applicant, will follow this direction. The staff's review of the documentation associated with the graded approach identified the following areas where additional information is required.

1. NUREG-0800 states, "The applicant has an HFE design team with the responsibility, authority, placement within the organization, and composition to ensure that the design commitment to HFE is achieved." The staff requests additional information on team composition. Specifically, for each team member participating in the analysis of EOF/TSC functions, describe the experience that directly relates to EOF/TSC HFE program analysis. The following areas are of particular interest: HFE experience, TSC experience, EOF experience, and Operational Experience.

2. The task analysis described in TR-136 section 2.4.2 states, "This task analysis will cover all of the identified areas where the data and display available in the main control room may be utilized in TSC and/or EOF functions." A subsequent sentence in the same section states that for completeness all task steps will be documented but those not associated with the display or provision of plant data will not be considered.

APS-OCS-GGR-110-P section 3.3, 4th paragraph states, "The development of additional displays is restricted to those that are required or useful in the MCR. If a potential display is deemed to be only required or useful in the TSC and/or EOF, the HFE scope is restricted to ensuring the data is made available to the TSC and EOF, and it does not include the display design."

Subsequent sentences state the COL applicant is best able to design these indications.

The staff requests clarification of the intent of these paragraphs and of the responsibilities of Westinghouse and the COL applicant respectively. The staff also requests an explanation of why a task identified via the task analysis would not receive such treatment.

3. Section 2.4.2 states that the task analysis will be based on available existing TSC and EOF procedures. The staff requests a description of what measures will be taken to ensure there are sufficient procedures available so that all pertinent tasks are identified.

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4. APP-OCS-GGR-110, rev 1, section 3.2.2 states, "Compliance to the guidelines will be checked as part of the design verification assessment of the MCR, although the TSC and EOF presentation is not within the scope of Westinghouse design verification assessment." The staff requests an explanation of how this verification and validation (V&V) process will be accomplished and who has responsibility for performing the V&V.

5. We have directed an RAI to Westinghouse concerning this matter and are also seeking an explanation from you in an effort to understand and resolve the matter. APP-OCS-GGR-110, rev 1, section 3.3 lists design activities that must be accomplished by the COL applicant. DCD revision 16 section 18.2.6.2 appears contradictory in that it deletes the phrase, "COL applicants...are responsible for designing the emergency operations facility." The staff requests that TVA provide additional basis for why the phrase was or will be deleted in DCD revision 16 given the additional work it requires of the COL applicant. The staff also requests additional information concerning what, if any, changes will be made to the COL information Item concerning the EOF/TSC HFE design.

6. The staff requests additional information concerning the applicant's definition of a "graded application" of the AP1000 HFE program with specific focus on the provision of data and display design as defined in the design certification.

7. APP-OCS-GGR-110, rev 1, Appendix B, "Summary List of Actions and Agreements," provides due dates for completion of actions. The staff requests an updated schedule for completion of the identified actions and the availability of any summary reports concerning the COL departure.

BLN RAI ID: 0754

BLN RESPONSE:

Westinghouse has addressed the above questions in responses to RAI-SRP18-COLP-01 and RAI-SRP18-COLP-03 (see Reference 2). The following supplemental information is provided in response to this RAI.

As stated in FSAR Subsection 13AA.1.1.1.2, the plant HFE program will be established based on the approved AP1000 HFE program described in DCD Chapter 18 for the Main Control Room and other scoped in items as described in AP1000 HFE program. The COL applicant's scope of work includes implementation and verification of applicable TSC/EOF displays per AP1000 HFE program. The TSC and EOF functions and tasks that are not within the scope of the AP1000 HFE Program will be subject to HFE principles and practices as described in NUREG-0737.

The graded approach is the same as the tailored approach, which is described by the Westinghouse AP1000 Human Factors Engineering Program Plan (APP-OCS-GBH-001, Rev 0), Section 4.2.1, "Tailored Approach." The tailored approach describes the framework to establish the level of HFE involvement in the different areas or systems. As indicated by Item 3 below, the AP1000 applicants have provided available existing procedures requested by Westinghouse to support the task analysis discussed in item 4 below. If a need for additional procedures is identified during the task analysis, the utilities will develop the additional procedures in accordance with the procedures discussions in FSAR Section 13.5.

The following is the updated status of actions described in Appendix B of Westinghouse document APP-OCS-GGR-110. This status was obtained from Westinghouse.

- Document the results of the TSC/EOF Workshop to support the licensing process (i.e., issue report, APP-OCS-GGR-110) - Completed

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- Provide TSC and EOF operating experience information associated with the four tasks identified in Sections 3.3 and 4.2 to Westinghouse - Completed
- Provide the TSC and EOF procedures associated with the four tasks identified in Sections 3.3 and 4.2 to Westinghouse - Completed
- Undertake task analysis of the four tasks identified in Sections 3.3 and 4.2 - In progress, forecast completion 12/2008
- Review, modify and develop displays for the presentation of in-plant data to support TSC and EOF tasks - Will follow #4 - Forecast completion 2009
- Identify the HSI Design Guidelines that are relevant to the design of TSC and EOF facilities - Forecast completion 12/2008
- Update the AP1000 HFE Program Plan to clarify the scope of the program in respect to the TSC and EOF - Completed

Plant HFE procedures have not yet been developed. HFE procedure development will track with the overall plant construction and test schedule. Details of the implementation milestones for the development of these procedures are not currently available, and are not expected to be available until after a detailed construction schedule has been developed. Appropriate scheduling information will be provided, when available, to the NRC as necessary to support timely completion of inspection and audit functions.

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.

ASSOCIATED ATTACHMENTS/ENCLOSURES:

None