



September 18, 1992
ALWR-92-422

Docket No. 52-002

Mr. Jack W. Roe
Office of Nuclear Reactor Regulation
Attn: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: System 80+™ Human Factors Engineering Review

- References:
1. NRC Letter dated June 4, 1992, May 19 Meeting on Human Factors
 2. ABB-CE Letter LD-92-080, HFE Criteria, dated July 7, 1992
 3. ABB-CE Letter ALWR-92-203, HFE Audit, dated April 30, 1992
 4. ABB-CE Letter LD-92-085, HFE Team, dated July 31, 1992

Dear Mr. Roe:

NRC staff and ABB-CE representatives have recently held two meetings (August 20 and September 9-10, 1992) on Human Factors Engineering of the Nuplex 80+ control room design. It is clear from experience to-date that this review requires the development of new acceptance criteria and we note that progress has been made this past summer. We will continue to support the development of new review criteria and we appreciate the efforts of NRC staff in this difficult task.

While NRC must continue to review ABB-CE's control room design process, it appears that the current approach is not viable since approval of the control room's basic design features prior to certification is not being pursued. The basic problem is that NRC approval of the control room design appears to be embodied almost entirely in the verification and validation testing of a full proto-type control room. Waiting for NRC approval until a complex control room proto-type is constructed voids the purpose of design certification and is not commercially practical for a designer. The current NRC review model (e.g., see Reference 1) is process oriented and ABB-CE realizes that review of the design process is necessary since the control room design cannot be fully completed prior to design certification. It is our belief, however, that the current review model does not provide sufficient emphasis on review of the basic design features that are currently available and that form a substantial basis for the complete control room design.

ABB-CE provided a document on proposed review criteria (Reference 2) which addressed both process and product review. NRC concerns with that document were

28-165

ABB Combustion Engineering Nuclear Power

2032
10

20930036 920918
PDR ADOCK J5200002
A PDR

1000 Prospect Hill Road
Post Office Box 500
Windsor, Connecticut 06095-0500

Telephone (203) 688-1911
Fax (203) 285-9412
Telex 99297 COMBEN WSOR

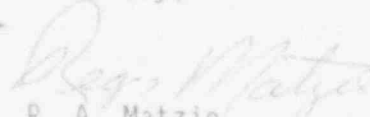
provided at the August 20, 1992 meeting, but those concerns did not obviate the need for review of the basic design features. ABB-CE remains strongly convinced that design features must play a more significant role in the review of Nuplex 80+. A prudent approach must involve a stepwise sign-off of the design such that reasonable assurance of NRC approval of the to-be-completed design can be established at the time of design certification and that construction, testing, and startup can subsequently be accomplished without significant design changes, cost overruns, or schedule delays. To accomplish this, basic design features (such as those in Reference 3) must be approved by NRC early in the design process.

ABB-CE believes that the NRC review model should be modified now to address approval of specific design features and it is requested that NRC staff provide additional emphasis on achieving this end. We look forward to incorporation of the important aspects of the proposed design feature acceptance criteria from Reference 2 into the NRC review model and we encourage this to be accomplished in the near future.

Also, the design of a power plant's control room and other human-machine interfaces cannot be accomplished in isolation from other engineering disciplines (e.g., instrumentation and controls design, fluid systems performance). The Nuplex 80+ human-machine interface design is being accomplished by a team with representatives from all related disciplines in accordance with NRC review criteria (Reference 4) and we believe that NRC review should also include representatives from other branches (e.g., Instrumentation and Control Systems, Plant Systems, and Reactor Systems). We therefore request that NRC establish a team approach to the review of Nuplex 80+ human-machine interfaces to facilitate an integrated, balanced review of both the process and the design features.

I look forward to discussing the above in more detail and would welcome the opportunity to answer any questions that you might have.

Sincerely,



R. A. Matzie
Vice President
Nuclear Systems Development

RAM/sr

cc: C. Thomas, Jr.
T. Wambach
R. Pierson
D. Crutchfield
Wm. Russell