ABB

June 27, 1994
LD-94-046

Docket No. 52-002

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: System 80+™ Exemptions from Regulations

Reference: Letter LD-94-027, C. B. Brinkman (ABB-CE) to NRC dated April 26, 1994

Dear Sirs:

In response to a request from the NRC Project Directorate, ABB-CE is submitting the attached summary of System 80+ design and operational features which involve deviations from current regulations. The deviations in this letter supplement the ones provided in the referenced letter.

The attachment summarizes the basis for each of the exemptions, consistent with the requirements of 10 CFR 50.12. It is ABB-CE's understanding that the acceptability of the exemptions and corresponding System 80+ features will be documented in the Final Safety Evaluation Report (NUREG-1462) and will be codified during the System 80+ Design Certification rulemaking.

If you have any questions, please call me or Mr. Stan Ritterbusch at (203) 285-5206.

Very truly yours,

COMBUSTION ENGINEERING, INC.

S. E. Ritterbusch for

C. B. Brinkman
Director
Nuclear Systems Licensing

rew/lw
Attachment

cc: J. Trotter (EPRI)
T. Wambach (NRC)
P. Lang (DOE)

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ATTACHMENT 1

Summary of System 80+™ Deviations from NRC Regulations

The following paragraphs summarize System 80+ deviations from NRC regulations. It is ABB-CE's understanding that NRC staff agrees with the deviations.

10 CFR 50.34(f)(2)(iv) - Requirement for a Separate "Console":

The regulation 10 CFR 50.34(f)(2)(iv) requires that an application:

> Provide a plant safety parameter display console that will display to operators a minimum set of parameters defining the safety status of the plant, capable of displaying a full range of important plant parameters and data trends on demand, and capable of indicating when process limits are being approached or exceeded (I.D.2).

The purpose of the requirement for an SPDS, as stated in NUREG-0737, Supplement 1, is to "...provide a concise display of critical plant variables to the control room operators to aid them in rapidly and reliably determining the safety status of the plant. ...and in assessing whether abnormal conditions warrant corrective action by operators to avoid a degraded core."

The System 80+ design does not provide a separate SPDS, but rather, the functions of the SPDS are integrated into the overall control room display capabilities. In lieu of the requirements in 10 CFR 50.34(f)(2)(iv) for a separate "console," ABB-CE has proposed the following commitments in the System 80+ safety analysis report (CESSAR-DC):

(1) Section 18.7.1.8.1, Safety-Related Data, states that the Nuplex 80+™ Advanced Control Complex provides a concise display of critical function and success path performance indications to control room operators via the Data Processing System.

(2) Section 18.7.1.8.1 states that the IPSO big board display is a dedicated display which continuously shows all critical function alarms and key critical function and success path parameters.

(3) Section 18.7.1.8.1 describes the SPDS for the System 80+ and states that all five of the safety function elements are included in the DPS Critical Function Hierarchy which forms the basis of the Nuplex 80+ SPDS function.

(4) Section 18.7.1.8.2 states that the critical function and success path monitoring application in conjunction with the continuous IPSO display and the DPS CRTs meet SPDS requirements for Nuplex 80+ without using stand-alone monitoring and display systems.

ABB-CE believes its approach of integrating the features of the SPDS into the operators control interfaces used every day more than achieves the underlying purpose of 10 CFR 50.34(f)(2)(iv) by ensuring that the SPDS functional requirements are satisfactorily incorporated in the control room design without a separate "console" and therefore meet the exemption criteria (a)(1), (a)(2)(ii), (a)(2)(iii), and (a)(2)(vi) of 10 CFR 50.12.

10 CFR 50, Appendix J, Section III.C.3(b) - Requirement for Isolation Valve Seal-Water System

The requirement in Appendix J of 10 CFR 50, Section III.C.3(b) states:

> The installed isolation valve seal-water system fluid inventory is sufficient to assure the sealing function for at least 30 days at a pressure of 1.10 Pa.

In Amendment U to the CESSAR-DC, ABB-CE rearranged valve elevation such that SIS valves SI-602, 603, 616, 626, 636, and 646 are approximately 1.2m (4 ft) below the minimum IRWST water level and SCS valves SI-600 and 601 are approximately 0.44m (1.5 ft) below the minimum water level. The minimum IRWST water level was determined for a large LOCA. By using this valve rearrangement, the IRWST will provide a manometer effect to establish a water seal at the valves because the containment pressure is exerted on the surface of the IRWST liquid and the SIS forms a closed loop with containment following a pipe break. ABB-CE believes that this alternate valve arrangement meets the intent of the regulation in 10 CFR 50, Appendix J, Section III.C.3(b).

As a result of staff review, ABB-CE has committed to provide: (1) periodic pressure testing as described in CESSAR-DC Sections 3.9.6 and 6.6 to ensure the integrity of the closed loop SIS outside containment is being maintained; and (2) a preoperational test as described in CESSAR-DC Section 14.2 to ensure the existence of the water seal.

Based on the revised valve arrangement and the commitment to periodic and pre-operational tests as discussed above, ABB-CE believes it meets the intent of the regulation in maintaining a water seal against the valve and therefore meets the exemption criteria (a)(1), (a)(2)(ii), (a)(2)(iii), and (a)(2)(vi) of 10 CFR 50.12.