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U.S. Nuclear Regulatory Commission
Brain K. Grimes, Director
Division of Project Support
Office of Nuclear Reactor Regulation

February 17, 1995

SUBJECT: Request for Clarifications of NRC Information Notice 95-10, Potential for Loss of Automatic Engineered Safety Features Actuation

Dear Mr. Brain K. Grimes:

The subject Information Notice 95-10 addressed a postulated steam line break would render one train of Solid State Protection System (SSPS) inoperable, or both trains of SSPS inoperable if assuming a single failure in the redundant train. The circumstances are due to the electrical faults in the unisolated non-class 1E circuits would cause fuses in SSPS power supply circuits to open, and consequently cause a loss of power to SSPS logic circuitry and disable ESF automatic actuation.

The above circumstances are very similar to a potential issue concerning inadequate electrical isolation in 120V vital instrument AC power circuits (PG&E Letter DCL-94-291, dated December 30, 1994), i.e., as a result of a credible common-mode failure initiating event, the electrical faults in the unisolated non-class 1E circuits could trip the "mixed-load circuit breakers" that supply power to both class 1E and non class 1E devices; and an violation of single failure criterion design basis could occur if the redundant class 1E devices are also powered by the respective defaulted circuit breakers .

This letter is to request NRC to clarify whether the plant should declare the ESF portion of SSPS inoperable and enter Technical Specification 3.0.3 limiting condition for operation under the circumstances described in Information Notice 95-10.

The following of this letter discusses the current single failure criterion design bases as well as High Energy Line Break (HELB) design bases adopted by most U.S. nuclear plants. If the plant can demonstrate and justify under the circumstances described in Information Notice 95-10 that these design bases can be met and the plant can be safely shutdowned, I believe actions to declare SSPS inoperable and to enter Technical Specification 3.0.3 limiting condition would not be required.

Single Failure Criterion Design Basis

Each of the postulated steam breaks would render only one train of SSPS inoperable. This meets the single failure criterion design basis that no single event can cause the loss of redundant class 1E devices.

HELB Analysis Methodology and Design Bases

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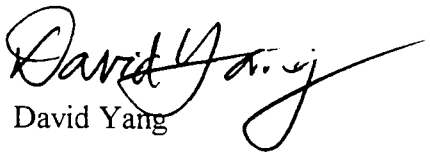
In analyzing the effects of postulated piping failures, BTP ASB 3-1 provides the following criteria: (1). A single active component failure should be assumed in systems used to mitigate consequences of the postulated piping failure and to shutdown the reactor. (BTP ASB 3-1, section B.3.b.(2)) (2). All available systems, including those actuated by operator actions, may be employed to mitigate the consequences of a piping failure. The feasibility of carrying out operator actions should be judged on the basis of ample time and adequate access to equipment being available for the proposed actions. (BTP ASB 3-1, section B.3.b.(4))

The first criterion above requires that only those equipment with redundancy following a HELB can be credited for mitigating the consequences of the HELB. However it does not require to maintain redundancy in ESF equipment that are not used for mitigating the consequences of a HELB.

The second criterion above provides the flexibility in selecting the available and/or alternative equipment for mitigating the consequences of a HELB at a particular location. Under the circumstances of Information Notice 95-10, by assuming a single failure in the redundant SSPS train while a postulated steam line break disables one SSPS train, SSPS automatic actuation of all MSIV's isolation would not be available. However, if the HELB analyses can demonstrate that manual actuation of MSIV's can be accomplished within a reasonable time after the break, and the plant transients during the entire event are bounded by the existing FSAR Chapter 15 accident analysis so that the plant can be safely shutdowned (without SSPS automatic actuation of MSIV's), the above HELB design bases and regulatory requirements should be considered met.

Sincerely Yours



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