



STN 50-470F

March 22, 1985  
LD-85-013

Mr. Hugh L. Thompson, Director  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: CESSAR Confirmatory Issues 1 and 2, Single Failure Vulnerability  
of Auxiliary Pressurizer Spray

- References:
- (A) NRC Letter, C. O. Thomas to A. E. Scherer, dated March 27, 1984
  - (B) C-E Letter LD-84-051, A. E. Scherer to D. G. Eisenhut, dated September 18, 1984
  - (C) NRC Letter, D. M. Crutchfield to A. E. Scherer, dated February 8, 1985
  - (D) Safety Evaluation Report - CESSAR System 80, U.S. Nuclear Regulatory Commission, NUREG-0852 Supplement 2, dated September 1983

Dear Mr. Thompson:

Reference (A) identified what the Staff considered to be vulnerability for a potential single failure of the System 80™ auxiliary pressurizer spray system. This potential single failure centered on the possibility of the charging line backpressure valve (CH-240) spuriously opening or sticking in the open position. This would result in a reduction of the auxiliary spray system flow during a plant cooldown or plant transient and, consequently, a decrease in the plant depressurization rate.

While Combustion Engineering (C-E) could not identify a credible scenario under which this valve could fail to an open position, C-E nevertheless committed in Reference (B) to add another valve in series with CH-240 to address the NRC concern. Based on discussions with the NRC Staff, C-E believed that the addition of this valve (CH-239) would resolve this issue. In Reference (C), however, the Staff has taken the following new position:

"Thus, the existing loop charging valve (CH-240) and the additional series valve used to isolate normal charging flow should satisfy the single failure criterion and should not be dependent on the use of non-safety-related equipment including the power distribution system. Specifically, each valve should be powered from separate, electrically independent Class 1E buses; any exception to this position must be appropriately justified."

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Mr. Hugh L. Thompson  
March 22, 1985

Page 2  
LD-85-013

C-E believes that the above Staff position, that the valves "should not be dependent on the use of non-safety related equipment", is met by the use of valve CH-239 in series with valve CH-240, both powered from non-1E sources. Both valves have pneumatic operators which are designed for valve closure on either loss of instrument air or loss of electrical power. Loss of offsite power would result in both valves being closed (which is the safety function position). These valves do not depend on electrical power to perform their safety function and, therefore, the Staff requirement for these valves to not be dependent on the non-1E power source is met.

Based on previous discussions with the Staff, it is C-E's understanding that the Staff's interest in powering these valves from independent class 1E sources is based on a concern that an electrical failure in the non-1E power system could somehow result in a mechanical failure, preventing valve closure.

C-E believes that such a failure is not credible and that 1E power supplies are not necessary. On the Palo Verde docket, the NRC accepted the use of class 1E protective devices (isolators) as an alternative to 1E power supplies [Reference (C)]. While it is not clear that the power supply isolators are necessary, C-E would agree to add isolators to the power supplies for valves CH-239 and CH-240 in the System 80 design if the Staff would agree that these isolators were sufficient to close confirmatory issues 1 and 2 on the CESSAR-F docket [Section 1.8 of Reference (D)]. Please let us know your response so that this issue can be closed out as soon as possible.

If you have any questions or comments, please feel free to call me or Mr. S. E. Ritterbusch of my staff at (203) 285-5206.

Very truly yours,

COMBUSTION ENGINEERING, INC.



A. E. Scherer  
Director  
Nuclear Licensing

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cc: P. Moriette (NRC)