

ANS Issues Response to Inquiry on ANSI N271-1976, “*Containment Isolation Provisions for Fluid Systems*” (redesignated ANS-56.2).

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Inquiry:

I am requesting an interpretation or clarification for criteria (3) of ANSI N271-1976, Section 3.6.7, Criteria for Closed Systems Outside Containment. Specifically, criteria (3) states that the closed system shall "Withstand temperature and internal pressure equal to the containment design conditions."

Do the words "containment design conditions" refer to design of the containment structure, itself, or does it refer to the analytical design basis accident pressure and temperature that the structure must withstand?

Response:

The "containment design conditions" are the "design temperature and pressure rating for the containment."

BASES:

a. "For the isolation function, one isolation barrier is required after the occurrence of a single active failure in the isolation provisions." (Paragraph 3.2 of ANSI N271-1976 and in ANSI/ANS-56.2-1984). The intent of the closed system is to act as one of the containment barriers if the isolation valve should fail. Therefore, the closed system should withstand a temperature and internal pressure equal to the design temperature and pressure rating for the containment.

b. Note: This response is consistent with the present U.S. Nuclear Regulatory Commission (NRC) acceptance criteria provided in Section 6.2.4 "Containment Isolation System" of NRC Standard Review Plan (SRP), NUREG-0800, Revision 3 - March 2007. Item 5 of the SRP Acceptance Criteria (Page 6.2.4-6) states:

"Containment isolation provisions for lines in engineered safety feature or engineered safety feature-related systems normally consist of two isolation valves in series. A single isolation valve is acceptable if system reliability can be shown to be greater, the system is closed outside containment, and a single active failure can be accommodated with only one isolation valve in the line. The closed system outside containment should be protected from missiles, designed to seismic Category I and Group B quality standards, and have a design temperature and pressure rating at least equal to that for the containment. The closed system outside containment should be leak-tested unless system integrity can be shown to be maintained during normal plant operations. For this type of isolation valve arrangement the valve is located outside containment, and the piping between the containment and the valve should be enclosed in leak-tight or controlled-leakage housing. If, in lieu of housing, piping and valve are designed conservatively to preclude a breach of piping integrity, the design should comply with SRP Section 3.6.2 requirements. Design of the valve or the piping compartment should provide the capability to detect and terminate leakage from the valve shaft or bonnet seals."