

ANS Answers Inquiry on ANSI/ANS-8.3-1997 (R2012), “Criticality Accident Alarm System” (revision of ANSI/ANS-8.3-1986).
(*Nuclear News*, July 2015)

Inquiry:

Section 6.3, Response to Radiation, discusses that a system response to radiation shall be measured periodically to confirm continuing instrument performance and that the test interval should be determined on the basis of experience. It further states that in the absence of experience, tests should be performed at least monthly. In this instance, what constitutes experience that would allow or demand deviation from a monthly testing schedule?

Excerpt from ANSI/ANS-8.3-1997 (R2012) provided below for reference below:

“6.3 Response to Radiation. System response to radiation shall be measured periodically to confirm continuing instrument performance. The test interval should be determined on the basis of experience. In the absence of experience, tests should be performed at least monthly. Records of tests shall be maintained. System designs may incorporate self-checking features to automate portions of this testing.”

Response:

The purpose of this requirement is to confirm that the instrumentation is continuing to perform in response to radiation following initial tests (Section 6.1). The recommendation that the test interval be based on past experience recognizes that actual performance may deviate from the expected performance over time from any number of causes, e.g., individual instrument defects, specific facility environmental conditions. As experience is gained, the test interval may be adjusted (more or less frequent) as the data and technical judgement support. It is a recommendation because compliance cannot be achieved for new systems.

In the absence of experience, an initial test interval of one month is recommended. It is a recommendation to allow variation (more or less frequent) based on technical judgement that may incorporate, amongst other potential considerations, specific system physics, similar system experience in other facilities or areas, and known relevant facility environmental conditions.