ANS Issues Response to an Inquiry on ANSI/ANS-8.19-2005, "Administrative Practices for Nuclear Criticality Safety" (revision of ANSI/ANS-8.19-1996).
(*Nuclear News,* February 2014)

Purpose on Inquiry (from submitter):
Clarification is sought for consistent application of ANS-8.19 relative to "evacuation signals" that are not referenced as such in ANS-8.3 or its preamble, and appendices. This inquiry is directed at current ANS-8.19 language and not current ANS-8.3 language.

Inquiry:
Section 10, Planned Response to Nuclear Criticality Accidents, states:

> "10.1 Guidance for the use of nuclear criticality accident alarm systems may be obtained from American National Standard 'Criticality Accident Alarm System,' ANSI/ANS-8.3-1997; R2003. Evacuation signals are also addressed in ANSI/ANS-8.3-1997; R2003."

There is ambiguity connecting the second sentence to the first sentence. The second sentence implies that the alarm signal generators are exclusive to "evacuation." ANSI/ANS-8.3-1997; R2003; R2012[1] does not reference or define the term "evacuation signal" nor imply the alarm signal is for evacuation exclusively. While it is recognized the utility of alarm signals is to facilitate evacuation as one possible prompt protective action, the second sentence in ANSI/ANS-8.19-2005 could be misinterpreted to imply the alarm signals are for evacuation exclusively and that "prompt protective action" would not deviate from that definition. The linking of alarm signals to evacuation exclusively perpetuates the long-standing incorrect application at some facilities of defining a "signal coverage or annunciation area" as an "evacuation area," as numerous clarifications have been written but heeded to no avail.

Requirements for evacuation areas are specified within

- ANSI/ANS-8.23-2007; R2012, Section 6, and 5.2
- ANSI/ANS-8.3-1997; R2003; R2012, Foreword (not part of the standard)
  - Paragraph 1, the second sentence refers to an alarm system to initiate personnel protective actions in the event of inadvertent criticality, which can refer to actions in addition to evacuation.
  - Paragraph 2, the term "immediate evacuation" was replaced with "personnel protective action" since for some shielded facilities or locations, proper immediate response by some personnel may be to remain at their current location rather than to evacuate.
- ANSI/ANS-8.3-1997; R2003; R2012, Table of Contents (not part of the standard), Appendix C "Signal Characteristics and Sound Levels"
- ANSI/ANS-8.3-1997; R2003; R2012, Section 1, "Where a criticality accident may lead to an excessive radiation dose, it is important to provide a means of alerting personnel, and a procedure for their prompt evacuation, or other protective actions to limit their exposure to radiation."

[1] ANSI/ANS-8.3-1997 was reaffirmed (reapproved without any changes) in 2003 and again in 2012. The designation of ANSI/ANS-8.3-1997; R2003; R2012 acknowledges the two reaffirmations by using an "R" before the year of reaffirmation.

- ANSI/ANS-8.3-1997; R2003; R2012, Section 4.3.1, “Criticality alarm signals shall be for prompt evacuation or other protective actions...”
- ANSI/ANS-8.3-1997; R2003; R2012, Section 4.3.5, “For all occupied areas where personnel protective action is required...the number and placement of criticality alarm signal generators...”

Response:
There was no distinction intended between “alarm signal” and “evacuation signal”; however, the entire Section 10 was deleted from the draft revision of ANS-8.19 early in the revision process. The draft has been reviewed twice by ANS Subcommittee 8 and has been issued to the Nuclear Criticality Safety Consensus Committee for ballot.

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