

ANS Issues Clarification on ANSI/ANS-8.19-2005, “Administrative Practices for Nuclear Criticality Safety.”

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Inquiry:

In paragraph 8.4 of ANSI/ANS-8.19-2005 it states, “Before the start of operation, there shall be an independent review that confirms the adequacy of the nuclear criticality safety evaluation.” My question is: What type of “independent review” is intended here by the Standards Committee? For example, is this review the “peer review” (i.e., technical review) or is this intended to be completed by some criticality committee or other outside reviewer? Is this “independent review” intended to be a technical review of the Nuclear Criticality Safety Evaluation (NCSE) content or a review of the implementation of the NCSE in the operation, or both? If this “independent review” (in paragraph 8.4 of ANSI/ANS-8.19-2005) is not the independent (peer) technical review, where is the requirement for this type of review?

Response:

Section 8.4 of ANSI/ANS-8.19-2005 addresses independent review of process evaluations for nuclear criticality safety. The words in this section were intentionally chosen to accommodate various situations for who conducts the independent review, including:

- A qualified individual in the same organization;
- A competent person from another site organization (Note: Historically, this might have been operations personnel.);
- Non-site personnel (e.g., a consultant or advisor from an external organization);
- An advisory committee.

Section 8.3 provides criteria for the person(s) who perform the independent review (i.e., familiarity with the physics of nuclear criticality and the facility operations and its associated criticality safety practices). However, the standard intentionally avoids prescribing, by job function, who should do the review.

When the standard was originally drafted many years ago, evaluations rarely involved extensive complex calculations (e.g., Monte Carlo calculations) as evaluations frequently do today. The dominant concern of any reviewer was, and still should be, whether or not the appropriate range of normal and abnormal conditions was understood. This requires detailed understanding of the process operations. The term “adequacy” in Section 8.4 implies that all aspects of the evaluation will be reviewed, however simple or complex the evaluation might be. Details of how the review is done and documented are left up to the users of the standard. The standard requires management to provide subject matter experts to perform the review, but it does not specify whether an individual or a committee performs the review.

In conclusion, the current wording of the standard is intended to describe industry best practices without being too prescriptive. Users of the standard are free to define terms such as “peer review” and “technical review” for local use in a way that still meets the standard’s requirements.