

INTRODUCTION TO THE SPECIAL SECTION ON NUCLEAR CRITICALITY SAFETY

In response to the “graying” of the nuclear criticality safety community, the Nuclear Criticality Safety Division (NCSD) of the American Nuclear Society (ANS) decided to sponsor a session for student research in criticality. This session was held in June 1992 at the Boston ANS meeting. Eight papers were presented, and the division felt that this work was important enough to be written up as complete papers. Each student was given the opportunity to extend the usual 900 word ANS Transactions summary to a full paper for submission to *Nuclear Technology*. Three such papers were submitted and are presented in this special section on nuclear criticality safety. This work is of more than academic interest. The paper on reactivity worth measurements demonstrates a technique for further verification of computer estimates of fluxes. The paper on the calciner exit chute describes a criticality evaluation of a standard part of the normal operations in the uranium fuel cycle. The third paper evaluates physical phenomena that may result in significant reactivity effects for damp, low-enriched UO₂ systems.

It is important to note that these papers went through the normal peer review process for the journal just like any other submission to *Nuclear Technology*. Each student responded to the reviewers' comments and revised the paper as required. This was a unique learning experience for both the students and the analysts in criticality safety. At an early stage in their careers, the students have been provided with the opportunity for submitting technical work to criticality community peer review. The analysts have now found that good, solid technical work can come from the universities. The NCSD believes that it is important to continue sponsoring student research in criticality and to get the students involved early in the analysis and evaluation of problems within the industry. Therefore, the NCSD is sponsoring another student session at the 1994 ANS Summer Meeting and hopes that the quality of work presented there is similar to the work described in these papers.