

DOMESTIC AND INTERNATIONAL STANDARDS FOR NUCLEAR CRITICALITY SAFETY – OVERVIEW & STATUS

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ABSTRACT

The domestic and international consensus standards for nuclear criticality safety (NCS) have provided guidance for staff performing hands-on work in operations with fissionable materials. These consensus standards have contributed directly to the significant reduction in the rate of criticality accidents in process facilities since the 1940s. The last known criticality accident inside the United States was in 1978 (nearly 43 years ago) at the Idaho Chemical Processing Plant, and outside the United States, an accident occurred at Tokai-mura, Japan, in 1999 (22 years ago). The domestic consensus standards for NCS include the American Nuclear Society (ANS) standards. The ANS Standards Board, the NCS Consensus Committee, and the ANS-8 Subcommittee oversee the development and maintenance of these standards. There are currently eighteen standards in the ANS-8 series. Currently, there are six ANS-8 standards in revision mode and eleven in a maintenance mode with one new standard under development. The international consensus standards for NCS calculations, procedures, and practices are maintained and developed within the International Organization for Standardization, Technical Committee 85 on Nuclear Energy, Subcommittee 5 on Nuclear Fuel Technology, and Working Group 8, “Nuclear Criticality Safety.” Eleven standards are currently available, three standards are in revision mode, and two standards are development. This paper provides the NCS community with an overview and status report of domestic and international NCS consensus standards to stimulate interest and to support their continued development.

Key Words: **ISO, ANS, nuclear criticality safety, consensus standards**

* This manuscript has been authored by UT-Battelle, LLC under Contract No. DE-AC05-00OR22725 with the U.S. Department of Energy. The United States Government retains and the publisher, by accepting the article for publication, acknowledges that the United States Government retains a non-exclusive, paid-up, irrevocable, world-wide license to publish or reproduce the published form of this manuscript, or allow others to do so, for United States Government purposes. The Department of Energy will provide public access to these results of federally sponsored research in accordance with the DOE Public Access Plan (<http://energy.gov/downloads/doe-public-access-plan>).