
NUCLEAR DATA ACTIVITIES IN SUPPORT OF THE DOE NUCLEAR CRITICALITY SAFETY PROGRAM

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The DOE Nuclear Criticality Safety Program (NCSP) provides the technical infrastructure maintenance for those technologies applied in the evaluation and performance of safe fissionable material operations in the DOE complex. These technologies include an Analytical Methods element for neutron transport as well as the development of sensitivity/uncertainty methods, the performance of Critical Experiments, evaluation and qualification of experiments as Benchmarks, and a comprehensive Nuclear Data program coordinated by the NCSP Nuclear Data Advisory Group (NDAG).

The NDAG gathers and evaluates differential and integral nuclear data, identifies deficiencies, and recommends priorities on meeting DOE criticality safety needs to the NCSP Criticality Safety Support Group (CSSG). Then the NDAG identifies the required resources and unique capabilities for meeting these needs, not only for performing measurements but also for data evaluation with nuclear model codes as well as for data processing for criticality safety applications. The NDAG coordinates effort with the leadership of the National Nuclear Data Center, the Cross Section Evaluation Working Group (CSEWG), and the Working Party on International Evaluation Cooperation (WPEC) of the OECD/NEA Nuclear Science Committee. The overall objective is to expedite the issuance of new data and methods to the DOE criticality safety user. This presentation describes these activities in detail, with examples based upon special studies being performed in support of criticality safety for a variety of DOE operations.