American Nuclear Society

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nuclear data sets for reactor design calculations

an American National Standard

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Foreword

(This Foreword is not a part of American National Standard Nuclear Data Sets for Reactor Design Calculations, ANSI/ANS-19.1-2002.)

It is the intent of this American National Standard to present specifications for the preparation of nuclear data sets for use in reactor physics computer programs employed in the design of nuclear reactors and to specify certain data sets as standards. The nuclear data used in reactor design calculations are fundamental physical quantities and, hence, are independent of reactor type. The lack of complete, exact experimental measurements requires the use of evaluated estimates of the data. This standard specifies guidelines for such evaluations and specifies how the resulting data sets should be processed, tested, validated, and documented.

This standard is intended primarily for nuclear data used for reactor core calculations. However, it may be of use in shielding calculations and in other areas, such as dosimetry and fusion.

This standard presents specifications for the preparation of evaluated nuclear data sets, processed continuous data sets, and energy averaged data sets for use in nuclear reactors. ENDF/B-VI is identified as a standard evaluated data set. An MCNP cross-section library is identified as a standard processed continuous data set. It is believed that the development of standard averaged data sets for use in reactor design is an achievable goal, and therefore, procedures have been established in this standard for achieving this objective.

This standard was developed by Working Group ANS-19.l of the American Nuclear Society Standards Committee, which had the following member at the time it prepared and approved this standard for revision:

D. R. Harris, Chairman, *Rensselaer Polytechnic Institute*

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This standard was processed and approved for submittal to ANSI by the N17, Research Reactors, Reactor Physics, Radiation Shielding, and Computational Methods Committee on ANSI/ANS-19.1, *Nuclear Data Sets for Reactor Design Calculations*. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the N17 Committee had the following members:

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