

American Nuclear Society

**administrative practices
for nuclear criticality safety**

an American National Standard

WITHDRAWN

**May 15, 2005
ANSI/ANS-8.19-1996**

No longer being maintained as an American National Standard. This standard may contain outdated material or may have been superseded by another standard. Please contact the ANS Standards Administrator for details.



**published by the
American Nuclear Society
555 North Kensington Avenue
La Grange Park, Illinois 60526 USA**

ANSI/ANS-8.19-1996

**American National Standard
Administrative Practices for
Nuclear Criticality Safety**

Secretariat
American Nuclear Society

Prepared by the
**American Nuclear Society
Standards Committee
Working Group ANS-8**

Published by the
**American Nuclear Society
555 North Kensington Avenue
La Grange Park, Illinois 60526 USA**

Approved April 17, 1996
by the
American National Standards Institute, Inc.

American National Standard

Designation of this document as an American National Standard attests that the principles of openness and due process have been followed in the approval procedure and that a consensus of those directly and materially affected by the standard has been achieved.

This standard was developed under procedures of the Standards Committee of the American Nuclear Society; these procedures are accredited by the American National Standards Institute, Inc., as meeting the criteria for American National Standards. The consensus committee that approved the standard was balanced to ensure that competent, concerned, and varied interests have had an opportunity to participate.

An American National Standard is intended to aid industry, consumers, governmental agencies, and general interest groups. Its use is entirely voluntary. The existence of an American National Standard, in and of itself, does not preclude anyone from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standard.

By publication of this standard, the American Nuclear Society does not insure anyone utilizing the standard against liability allegedly arising from or after its use. The content of this standard reflects acceptable practice at the time of its approval and publication. Changes, if any, occurring through developments in the state of the art, may be considered at the time that the standard is subjected to periodic review. It may be reaffirmed, revised, or withdrawn at any time in accordance with established procedures. Users of this standard are cautioned to determine the validity of copies in their possession and to establish that they are of the latest issue.

The American Nuclear Society accepts no responsibility for interpretations of this standard made by any individual or by any ad hoc group of individuals. Requests for interpretation should be sent to the Standards Department at Society Headquarters. Action will be taken to provide appropriate response in accordance with established procedures that ensure consensus on the interpretation.

Comments on this standard are encouraged and should be sent to Society Headquarters.

Published by

**American Nuclear Society
555 North Kensington Avenue
La Grange Park, Illinois 60526 USA**

Copyright © 1996 by American Nuclear Society. All rights reserved.

Any part of this standard may be quoted. Credit lines should read "Extracted from American National Standard ANSI/ANS-8.19-1996 with permission of the publisher, the American Nuclear Society." Reproduction prohibited under copyright convention unless written permission is granted by the American Nuclear Society.

Printed in the United States of America

Foreword

(This Foreword is not a part of American National Standard Administrative Practices for Nuclear Criticality Safety, ANSI/ANS-8.19-1996.)

Administrative practices for nuclear criticality safety have evolved in the various organizations processing fissionable materials in ways appropriate to these organizations. Stimulated by expressions of interest on the part of the U. S. Nuclear Regulatory Commission, Subcommittee ANS-8 of the Standards Committee of the American Nuclear Society has developed this document. Typical of the differences between organizations is the nature of the nuclear criticality safety staff. While the functions assigned to the staff by this standard are being carried out by all these organizations, the administrative arrangements are so diverse that a concise definition of the term “nuclear criticality safety staff” has not been developed. In essence, the staff comprises those elements of the organization which, in concert, carry out the functions described.

This revision of this standard was prepared with the objective of providing additional guidance on documentation and recordkeeping, so that the intent, though perhaps not all the formality, of quality assurance would be met.

This revision was developed under the direction of Subcommittee ANS-8, Fissionable Materials Outside Reactors. The revision effort was led by David R. Smith, with the assistance of Royal W. Carson of The Babcock & Wilcox Company. The membership of ANS-8 at the time of its approval of this standard was as follows:

- | | |
|--|---|
| T. P. McLaughlin, Chairman, <i>Los Alamos National Laboratory</i> | R. Kiyose, <i>Tokai University</i> |
| J. C. Schlessler, Secretary, <i>Los Alamos National Laboratory</i> | R. A. Libby, <i>Battelle Pacific Northwest Laboratories</i> |
| F. M. Alcorn, <i>The Babcock & Wilcox Company</i> | R. E. Malenfant, <i>Los Alamos National Laboratory</i> |
| R. D. Carter, <i>Mohr & Associates</i> | W. G. Morrison, <i>Individual</i> |
| E. D. Clayton, <i>Individual</i> | D. A. Reed, <i>Martin Marietta Energy Systems, Inc.</i> |
| D. M. Dawson, <i>Transnuclear, Inc.</i> | D. R. Smith, <i>Individual</i> |
| D. R. Finch, <i>Westinghouse Savannah River Company</i> | J. T. Thomas, <i>Individual</i> |
| A. S. Garcia, <i>Argonne National Laboratory</i> | H. Toffer, <i>Westinghouse Hanford Company</i> |
| C. M. Hopper, <i>Oak Ridge National Laboratory</i> | G. E. Whitesides, <i>Oak Ridge National Laboratory</i> |
| E. B. Johnson, <i>Individual</i> | |
| N. Ketzlach, <i>Individual</i> | |

Consensus Committee N16, Nuclear Criticality Safety, had the following membership at the time of its approval of this standard:

- D. R. Smith, Chairman
- E. B. Johnson, Secretary

- | | |
|-------------------|---|
| C. Barnett | Lawrence Livermore National Laboratory |
| G. H. Bidinger | U. S. Nuclear Regulatory Commission |
| R. D. Busch | University of New Mexico |
| S. P. Congdon | GE Nuclear Energy |
| H. L. Dodds, Jr. | University of Tennessee |
| B. B. Ernst | American Nuclear Insurers |
| E. B. Johnson | Individual |
| R. A. Knief | Ogden Environmental Energy Services |
| J. R. LaRiviere | American Institute of Chemical Engineers |
| M. E. McLain, Jr. | Health Physics Society |
| C. D. Manning | Siemens Nuclear Power Corporation |
| J. F. Mincey | Westinghouse Savannah River Company |
| H. C. Paxton | Individual |
| B. Rothleder | U. S. Department of Energy |
| F. W. Sanders | California Institute of Technology |
| D. R. Smith | American Nuclear Society |
| R. G. Vornehm | Martin Marietta Energy Systems, Inc. (Y-12) |
| R. M. Westfall | Martin Marietta Energy Systems, Inc. |

Contents	Section	Page
	1. Introduction	1
	2. Scope	1
	3. Definitions	1
	4. Management Responsibilities	1
	5. Supervisory Responsibilities	1
	6. Nuclear Criticality Safety Staff Responsibilities	2
	7. Operating Procedures	2
	8. Process Evaluation for Nuclear Criticality Safety	3
	9. Materials Control	3
	10. Planned Response to Nuclear Criticality Accidents	3
	11. References	4