

American Nuclear Society

WITHDRAWN

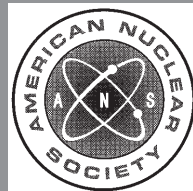
March 23, 2007

ANSI/ANS-8.23-1997 (W2007)

**nuclear criticality accident
emergency planning and response**

an American National Standard

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 This standard may contain outdated material or may have been superseded by another standard.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-8.23-1997

**American National Standard
for Nuclear Criticality Accident
Emergency Planning and Response**

Secretariat
American Nuclear Society

Prepared by the
**American Nuclear Society
Standards Committee
Working Group ANS-8.23**

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

Approved December 30, 1997
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 © 1998 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-8.23-1997 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 for Nuclear Criticality Accident Emergency Planning and Response, ANSI/ANS-8.23-1997.)

This standard provides guidance for emergency planning and response to a nuclear criticality accident for facilities outside reactors which process, store, or handle fissionable material. This standard assumes that an alarm system that complies with American National Standard Criticality Accident Alarm System, ANSI/ANS-8.3-1997, is in place. In addition, the standard focuses on those elements of planning and response needed specifically for a criticality accident. It is not a general emergency planning and response standard. For example, neither guidance for site-wide management of personnel nor transportation accidents onsite or offsite are addressed.

A working group was established by Subcommittee ANS-8 in the spring of 1992, to provide more detailed guidance than that given in American National Standard Administrative Practices for Nuclear Criticality Safety, ANSI/ANS-8.19-1996. While the intent was to provide detailed technical information for all aspects of planning and response, this was not practical due to the sheer volume of the information. Therefore, this information is not included. Instead, the working group decided to seek separate publication of relevant technical information. This information, once widely circulated and reviewed, could be cited in future revisions of this standard.

This standard was prepared by Working Group ANS-8.23, composed of:

N. L. Pruvost, Chairman, *Los Alamos National Laboratory*
M. A. Austin, *United States Department of Energy*
J. S. Baker, *Martin Marietta Energy Systems, Inc.*
W. A. Blyckert, *Mohr & Associates*
S. P. Burris, *Systematic Management Services*
R. W. Carson, *Babcock & Wilcox Company*
J.-S. Choi, *Lawrence Livermore National Laboratory*
G. F. Couture, *Westinghouse Savannah River Company*
D. M. D'Aquila, *Martin Marietta Utility Services, Inc.*
D. L. Honkonen, *Individual*
C. M. Hopper, *Oak Ridge National Laboratory*
D. J. Lindenschmidt, *Battelle Memorial Institute*
H. F. Lutz, *Lawrence Livermore National Laboratory*
D. H. Nguyen, *Lawrence Livermore National Laboratory*
J. S. Pearson, *Lawrence Livermore National Laboratory*
V. L. Putman, *Lockheed Idaho Technologies Company, Inc.*
S. R. Salaymeh, *Westinghouse Savannah River Company*
R. W. Tayloe, Jr., *Battelle Memorial Institute*
J. W. Thompson, *Atlantic Nuclear Services, Ltd.*
H. Toffer, *Westinghouse Hanford Company*
H. W. Webb, *Nuclear Fuel Services, Inc.*

Working Group ANS-8.23 gratefully acknowledges the contribution to this standard of M. A. Austin, who died before the group's work was completed.

The Membership of Subcommittee ANS-8 at the time of its ballot on this standard was:

T. P. McLaughlin, Chairman, *Los Alamos National Laboratory*
J. A. Schlessler, Secretary, *Los Alamos National Laboratory*
F. M. Alcorn, *Babcock & Wilcox Company*
R. D. Carter, *Mohr & Associates*
D. M. Dawson, *E. R. Johnson, Assoc., Inc.*
D. R. Finch, *Westinghouse Savannah River Company*
A. S. Garcia, *Argonne National Laboratory*
C. M. Hopper, *Oak Ridge National Laboratory*
E. B. Johnson, *Oak Ridge National Laboratory*
N. Ketzlach, *Individual*
R. Kiyose, *Tokai University*
R. A. Libby, *BPNWL*
W. G. Morrison, *Individual*
D. A. Reed, *Martin Marietta Energy Systems, Inc.*
D. R. Smith, *Individual*
J. T. Thomas, *Individual*
H. Toffer, *Safe Sites of Colorado, LLC.*
G. E. Whitesides, *Individual*

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

D. R. Smith, Chairman
R. A. Knief, Vice Chairman

G. H. Bidinger	Individual
R. D. Busch	University of New Mexico
S. P. Congdon	GE Nuclear Energy
H. L. Dodds, Jr.	University of Tennessee
R. A. Knief	Ogden Environmental and Energy Services
J. R. LaRiviere	American Institute of Chemical Engineers
C. D. Manning	Siemens Nuclear Power Corporation
S. P. Murray	Health Physics Society
H. C. Paxton	Individual
R. L. Reed	Westinghouse Savannah River Company
B. M. Rothleder	U.S. Department of Energy
F. W. Sanders	Individual
D. R. Smith	American Nuclear Society
R. G. Taylor	Lockheed Martin Energy Systems, Inc.
J. T. Thomas	Individual
R. M. Westfall	Lockheed Martin Energy Research Corporation

Contents	Section	Page
	1. Introduction	1
	2. Scope	1
	3. Definitions	1
	3.1 Limitations	1
	3.2 Shall, Should, and May	1
	3.3 Glossary of Terms	1
	4. Responsibilities	1
	4.1 Management Responsibilities	1
	4.2 Technical Staff Responsibilities	2
	5. Emergency Response Planning	2
	5.1 Evaluation	2
	5.2 Emergency Response Plan	2
	5.3 Equipment	3
	6. Evacuation	3
	6.1 Personnel in the Immediate Evacuation Zone	3
	6.2 Monitoring in Adjacent Areas	3
	6.3 Monitoring at Assembly Stations	3
	6.4 Further Evacuation of Non-Emergency-Response Personnel	3
	6.5 Exits	3
	6.6 Identification of Assembly Stations	3
	6.7 Evacuation Route Planning	3
	7. Re-Entry, Rescue, and Stabilization	3
	7.1 Re-Entry	3
	7.2 Rescue	3
	7.3 Stabilization	4
	8. Classroom Training, Exercises, and Evacuation Drills	4
	8.1 Classroom Training	4
	8.2 Exercises	4
	8.3 Evacuation Drills	4
	9. References	4
	Bibliography	6