

American Nuclear Society

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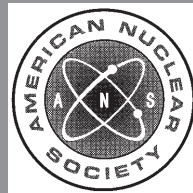
criticality accident alarm system

an American National Standard

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**American National Standard
Criticality Accident Alarm System**

Secretariat
American Nuclear Society

Prepared by the
**American Nuclear Society
Standards Committee
Working Group ANS-8.3**

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American National Standard

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Foreword

(This Foreword is not part of American National Standard Criticality Accident Alarm System, ANSI/ANS-8.3-1997.)

The usefulness and protective features of criticality accident alarm systems have been demonstrated in instances of accidental criticality that have occurred during the processing of fissionable materials. This standard provides guidance for the establishment and maintenance of an alarm system to initiate personnel protective actions in the event of inadvertent criticality.

Preparation of the standard, begun in 1966, resulted in the issuance of N16.2-1969, and an initial revision was issued in 1979. A second revision, issued in 1986, incorporated relevant features of American National Standard Immediate Evacuation Signal for Use in Industrial Applications, ANSI N2.3-1979. The 1986 revision also deleted the section that addressed emergency planning; such guidance is now provided in American National Standard Administrative Practices for Nuclear Criticality Safety, ANSI/ANS-8.19-1996.

Most of the changes incorporated into this revision of ANS-8.3 are oriented towards clarification, rather than change, of existing standard requirements and recommendations. Where concern exists for accidents of smaller magnitude than alarm systems have traditionally been designed to detect, additional guidance is now provided.

Use of portable instruments to augment an installed accident alarm system is now more specifically addressed. The term “immediate evacuation” has been replaced with “personnel protective action” since for some shielded facilities or locations, proper immediate response by some personnel may be to remain at their current location rather than to evacuate.

This standard is compatible with ISO 7753, *Nuclear energy—Performance and testing requirements for criticality detection and alarm systems*. IEC 860, *Warning equipment for criticality accidents*, contains useful information regarding electrical characteristics and testing procedures for alarm equipment.

Appendix B has been extensively revised to provide analytical methods and example applications for determining detector placement.

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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. General Principles	1
	4.1 General	1
	4.2 Coverage	1
	4.3 Criticality Alarm	2
	4.4 Dependability	2
	5. Criteria for System Design	3
	5.1 Reliability	3
	5.2 System Vulnerability	3
	5.3 Seismic Tolerance	3
	5.4 Failure Warning	3
	5.5 Response Time	3
	5.6 Detection Criterion	3
	5.7 Sensitivity	3
	5.8 Spacing	3
	6. Testing	4
	6.1 Initial Tests	4
	6.2 Special Tests	4
	6.3 Response to Radiation	4
	6.4 Periodic Tests	4
	6.5 Corrective Action	4
	6.6 Test Procedures	4
	6.7 Records	4
	7. Employee Familiarization	4
	7.1 Posted Instructions	4
	7.2 Training and Criticality Alarm Drills	4
	8. References	4
Appendices		
	Appendix A Characterization of a Minimum Accident of Concern	5
	Appendix B Detector Placement	9
	Appendix C Signal Characteristics and Sound Levels	19
Tables		
	Table B.1 Moderated Assembly n/γ Dose Ratio Comparison	10
	Table B.2 Unmoderated Assembly n/γ Dose Ratio Comparison	11
	Table B.3 Integrated Quantities for a 25 g/l Pu (95/5) Solution Criticality	15
	Table B.4 Thermal Neutron Fluence Detector Response	16

Table B.5	Gamma Ray Dose Rate Detector Response	17
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Figures

Figure A.1	Energy Release During Initial Spike of Criticality Events in Process and Handling Operations	6
Figure B.1	Gamma Ray Dose Rate versus Distance, Based on a Total Dose of 0.20 Gy at 2 Meters	13
Figure B.2	An Example of a One-Dimensional Computational Model	15