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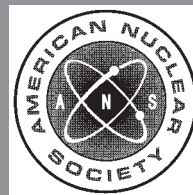
ANSI/ANS-8.23-2007 (R2012)

**nuclear criticality accident
emergency planning and response**

an American National Standard

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This standard does not necessarily reflect recent industry initiatives for risk informed decision-making or a graded approach to quality assurance. Users should consider the use of these industry initiatives in the application of this standard.



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

Secretariat
American Nuclear Society

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

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American National Standard

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Foreword (This Foreword is not a part of American National Standard “Nuclear Criticality Accident Emergency Planning and Response,” ANSI/ANS-8.23-2007.)

This standard provides criteria for emergency planning and response to a nuclear criticality accident for facilities outside reactors that 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 (R2003), is in place. This standard focuses on those elements of planning and response needed specifically in the event of a criticality accident. It is not a general emergency planning and response standard.

This revision adds three appendices. The appendices are intended to assist technical staff in fulfilling some of their responsibilities noted in this standard. Few changes were made to the body of the standard. Section 4.1(9) was revised because it was noted that a system to read dosimeters is needed to obtain useful information from them. Section 5.1 was revised to emphasize that accident characterization is done to support emergency response planning. Section 7 was reformatted without sub-subsections because reentry, rescue, and stabilization are interrelated topics.

The working group would like to gratefully acknowledge the contributions by Ichiro Nojiri, who died prior to the publication of this revision.

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This is a preview of "ANSI/ANS-8.23-2007 (...". [Click here](#) to purchase the full version from the ANSI store.

Nuclear Criticality Accident Emergency Planning and Response

1 Introduction

Criticality safety programs at facilities that use fissionable material are primarily directed at avoiding nuclear criticality accidents. However, the possibility of such accidents exists, and the consequences can be life threatening. Therefore, advance planning, practice in planned emergency responses, and verification of readiness are considered necessary.

2 Scope

This standard provides criteria for minimizing risks to personnel during emergency response to a nuclear criticality accident outside reactors. This standard applies to those facilities for which a criticality accident alarm system, as specified in American National Standard "Criticality Accident Alarm System," ANSI/ANS-8.3-1997 (R2003) [1],¹⁾ is in use. This standard does not apply to nuclear power plant sites or to licensed research reactor facilities, which are addressed by other standards.

3 Definitions

3.1 Limitations

The definitions given below are of a restricted nature for the purposes of this standard. Other specialized terms are defined in *Glossary of Terms in Nuclear Science and Technology* [2].

3.2 Shall, should, and may

The word "shall" is used to denote a requirement; the word "should" is used to denote a recommendation; and the word "may" is used to denote permission, neither a requirement nor a recommendation.

3.3 Glossary of terms

drill: Supervised instruction intended to test, develop, maintain, and practice the skills required in a particular emergency response activity. A drill may be a component of an exercise.

emergency coordinator: A person authorized to direct the overall emergency response.

emergency response: Actions taken from the time of identification of a suspected, imminent, or actual criticality accident to stabilization of the event, including the assumption that an accident has occurred, response to the emergency, and actions to begin subsequent recovery operations.

exercise: An activity that tests one or more portions of the integrated capability of emergency response plans, equipment, and organizations.

facility: A defined area where fissionable material is located.

immediate evacuation zone: The area surrounding a potential criticality accident location that must be evacuated without hesitation if a criticality accident alarm signal is activated.

site: A defined area containing one or more facilities.

technical staff: Personnel with specific skills and experience who can assist in the implementation of the requirements defined in this standard. Such personnel may include, but are not limited to, criticality safety, health and safety, and facility process support personnel.

4 Responsibilities

4.1 Management responsibilities

Management shall ensure the following:

- (1) Staff with relevant expertise is provided;

¹⁾Numbers in brackets refer to corresponding numbers in Sec. 9, "References."