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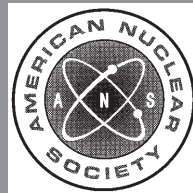
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**nuclear criticality accident
emergency planning and response**

an American National Standard

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**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**

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American National Standard

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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.

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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.

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Nuclear Criticality Accident Emergency Planning and Response

1. Introduction

Criticality safety programs at facilities which use fissionable material are primarily directed at the avoidance of nuclear criticality accidents. However, the possibility of such accidents exists and the consequences can be life-threatening. This mandates advance planning, practice in planned emergency responses, and verification of readiness.

2. Scope

This standard provides guidance 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 [1]¹, is in use.

This standard does not apply to nuclear power plant sites, nor to licensed research reactor facilities, which are addressed by the provisions of other standards. This standard does not apply to offsite accidents, nor to offsite emergency planning and response.

3. Definitions

3.1 Limitations. This section defines general terms and specific terms which could be given connotations that differ from normally accepted usage.

3.2 Shall, Should, and May. The word "shall" is used to denote a requirement, the word "should" to denote a recommendation, and the word "may" to denote permission, neither a requirement nor a recommendation. In order to conform with this standard, all operations shall be performed in accordance with its requirements but not necessarily with its recommendations.

3.3 Glossary of Terms

drill. Supervised instruction intended to test, develop, maintain, and practice the skills required

¹Numbers in brackets refer to corresponding numbers in Section 9, References.

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. These actions include 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 which may contain 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 that:

- (1) Staff with relevant expertise is provided.
- (2) An emergency response plan is established and maintained.
- (3) Immediate evacuation zones and evacuation routes are established.
- (4) A personnel assembly station (or stations) is established, and a method is provided for timely accounting of all personnel who were within the immediate evacuation zone at the time of the evacuation.
- (5) Instrumentation and equipment needed to respond to a criticality accident is provided.