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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 15847-1995

Replacing GB/T 15847-1995

**Dosimetry for nuclear criticality accidents
(English Translation)**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document replaces GB/T 15847-1995 "Determination of Dosimetry in Nuclear Critical Accidents". Compared with GB/T 15847-1995, the only changes are structural adjustments.

Aside from editorial changes, the main technical changes are as follows.

- The scope has been changed (see Chapter 1, Chapter 1 of the 1995 edition);
 - The term "dosimetry system" has been removed (see Chapter 3 of the 1995 edition);
 - Added recording requirements for nuclear criticality accident dose measurements (see 4.6);
 - The "Dosimetry System" and its setup requirements have been removed (see sections 4.1, 4.2, 4.2.1, 4.2.2, 4.2.3, 4.2.5, 5.1, and 1995 edition).
- Chapter 6);
- The requirements related to "procedures" and "measures" have been deleted (see sections 4.2.4 and 5.4 of the 1995 edition);
 - Added "Personal Dosimeter Measurement", "Location Dosimeter Measurement", "Biodosimeter Measurement", "Fission Count Estimation", and "Comprehensive Dosimetry Assessment" the "estimate" requirements are detailed in Chapters 5 through 9.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Nuclear Energy Standardization Technical Committee (SAC/TC58).

1 Scope

This document specifies the basic requirements for dose measurement in nuclear criticality accidents, based on the requirements for personal dosimeters, site dosimeters, and biological agents.

Requirements for quantity determination, requirements for estimating the number of fissions, and requirements for comprehensive dose assessment.

This document applies to personnel injured in a nuclear criticality accident at an off-reactor operation, handling, or storage facility or facility where fissile materials are stored.

Determination of irradiation dose.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 4960.5 Nuclear Science and Technology Terminology Part 5: Radiation Protection and Radiation Source Safety GB/T 15146.9 Performance and testing of nuclear criticality safety and nuclear criticality accident detection and alarm systems for external fissile materials.

Require

GB 18871 Basic Standards for Ionizing Radiation Protection and Radiation Source Safety
GB/T 28236 Methods for estimating biological doses due to chromosomal aberrations GB/T 46475 Method for estimating weighted absorbed dose from acute irradiation

3 Terms and Definitions

The terms and definitions defined in GB/T 4960.5 apply to this document.

4 Basic Requirements

4.1

Following a criticality accident, all resources should be utilized to ensure the most accurate estimation possible of the absorbed dose received by personnel. Nuclear criticality accident Dosimetry can provide technical support for the classification of irradiated individuals, emergency medical treatment, and the reduction of personal injury.

4.2

Methods for measuring and assessing nuclear criticality accident doses include.

- a) Personal dosimeters measure individual doses;
- b) Estimating individual dose using a location dosimeter;
- c) Estimating individual doses using biological dosimetry;
- d) Estimating individual dosage based on the number of fission cycles.

4.3

Nuclear criticality accident dose measurement and assessment can be based on a comprehensive analysis of information such as models, known geometric effects, and eyewitness reports.

4.4

Personal dosimeter and site dosimeter measurement methods are used for rapid acquisition of personal dose data, biodosimetry methods, and fission number estimation.

This is used to obtain supplemental dosage data.

4.5

Personal dosimeters and site dosimeters should be protected from radioactive contamination.

4.6

Measurement conditions and calibration methods should be recorded in detail, and original data should be preserved, especially key conditions, which should be clearly recorded for future repeat measurements.

The quantity and correction provide a true and reliable basis.