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

GB/T 15847-2025

Replacing GB/T 15847-1995

Dosimetry for nuclear criticality accidents

核临界事故剂量测定

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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

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). This document was drafted by: Nuclear Industry Standardization Institute, China Radiation Protection Research Institute, State Power Investment Corporation Nuclear Energy Co., Ltd., and China Atomic Energy Research

Institute. Research Institute of Nuclear Power Engineering, China Nuclear Power Engineering Co., Ltd., Tsinghua University, CNNC Zhejiang Energy Co., Ltd., CNNC Nuclear Power Operation and Management Co., Ltd. China Nuclear Power Research and Design Institute, China Nuclear Seventh Research and Design Institute Co., Ltd., and China General Nuclear Power Research Institute Co., Ltd. The main drafters of this document are. Yu Haoyang, Liu Liping, Dong Fangfang, Wang Xinyu, Bian Fengyuan, Cao Qinjian, Tang Zhihui, Feng Mei, and Li Jianwei. Xu Lilun, Xia Yihua, Yao Yonggang, Liu Feng, Song Weijie, Yu Miao, Hu Xiaoli, Qiu Rui, Zhang Weihua, Liu Qiang, Yang Yunfei, Liu Xusheng, Peng Yongjun Qi Mingsen, Ma Qiang, Luo Yong. The release history of this document and the standards it replaces is as follows:

---First published in.1995 as GB/T 15847-1995;

---This is the first revision. Nuclear critical accident dose determination

1 Scope

GB/T 15847-2025 is the Chinese national standard on dosimetry for nuclear criticality accidents, in the field of energy and heat transfer engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 31 October 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2026. Classification: ICS 27.120, CCS F74. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

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

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.

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

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