

ICS 27.120.20

CCS F83



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

GB/T 13284-2025

Replacing GB/T 13284.1-2008

Design criteria of safety systems in nuclear power plants

核电厂安全系统设计准则

Issued on: April 25, 2025

Implemented on: November 1, 2025

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

Table of Contents

- 1 Scope
- 2 Normative references
- 3 Terms and definitions

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. This document replaces GB/T 13284.1-2008 "Nuclear power plant safety system Part

1. Design criteria" and GB/T 13284.1- Compared with.2008, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

--- Changed the definition of terms (see Chapter 3, Chapter 3 of the.2008 edition);

--- Deleted the contents of set value and safe state limit (see 4.4.4 of the.2008 edition);

--- Changed the safety classification of the interface equipment of the safety system (see 5.7.4.2,

5.6.3.1 of the.2008 edition);

--- Changed the content of common cause failure (see 5.17, 5.16 of the.2008 edition);

--- The manual control method has been changed (see 6.3, 6.2 of the.2008 edition);

--- Added maintenance bypass requirements (see 6.8). Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed and coordinated by the National Technical Committee for Standardization of Nuclear Instruments (SAC/TC30). This document was drafted by: Nuclear Industry Standardization Institute, Beijing Guangli Nuclear System Engineering Co., Ltd., and China Nuclear Power Research and Design Institute. The main drafters of this document are. Liang Xueyuan, Jiao Liling, Wang Xiaoyan, Du Jian, Pei Hongwei, Wu Fangjie, Ma Jianxin, Huang Junlong, Liu Chunming, Liu Hongchun, Chen Peng and He Liang. The previous versions of this

document and the documents it replaces are as follows:

--- First issued as GB 13284-1991 in.1991 and first revised in.1998;

1 Scope

GB/T 13284-2025 is the Chinese national standard on design criteria of safety systems in nuclear power plants, 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 25 April 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 November 2025. Classification: ICS 27.120.20, CCS F83. 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 minimum functional and design requirements for the power source, instrumentation and control parts of the nuclear power plant safety system. This document applies to the design of those systems required to prevent or mitigate the consequences of design basis events and to protect public health and safety. It is used as a reference for the design of all safety-related systems, structures and equipment required to protect the safety of the entire nuclear power plant.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 5204 Periodic testing and monitoring of safety systems in nuclear power plants

GB/T 12727 Identification of electrical equipment important to safety in nuclear power plants

GB/T 12788 Safety-grade power system standards for nuclear power plants

GB/T 13286 Criteria for the independence of safety-class electrical equipment and circuits in nuclear power plants

GB/T 13626 Application of the single failure criterion to nuclear power plant safety systems

GB/T 13627 Standard for accident monitoring instrumentation in nuclear power plants

GB/T 13629 Applicable criteria for programmable digital devices in safety systems of nuclear power plants NB/T.20061 Application of human factors engineering in nuclear power plant systems, equipment and facilities NB/T 20394 Design and qualification of safety-class control panels, screens and racks for nuclear power plants

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Safety function To ensure that nuclear facilities or activities can prevent and mitigate the radioactive consequences of normal operation of nuclear power plants, anticipated transient operation and accident conditions. Specific functions that must be completed to ensure nuclear safety. [Source: GB/T 41143-2021, 3.16, modified]

3.2 Safety systemsafety system Safety factors used to ensure safe shutdown of the reactor, remove residual heat from the core, or limit the consequences of anticipated operational events and design basis events. Need system.

3.3 Safety class safetyclass Level 1E A safety level for electrical equipment and systems in nuclear power plants. Note

1. These equipment and systems are necessary to complete reactor emergency shutdown, containment isolation, core cooling, and heat removal from the containment and reactor.