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

GB/T 22158-2021

Replacing GB/T 22158-2008

Code for fire protection design of nuclear power plant

核电厂防火设计规范

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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 of Standardization Documents" Drafting. This document replaces GB/T 22158-2008 "Code for Fire Protection Design of Nuclear Power Plants", compared with GB/T 22158-2008, except for structural adjustments. In addition to editorial changes, the main technical changes are as follows:

- a) Added the fire protection design of the general layout (see Chapter 5), fire zone/fire community division requirements (see 6.2), and fire safety analysis (See Chapter 11), internal explosion-proof design (see Chapter 12), fire protection design requirements for some key areas (see 13.7, 13.13, 13.16, 13.17, 13.18), etc.;
- b) Inapplicable regulations such as water seal test are deleted (see Appendix C of the 2008 edition);
- c) Modified the general requirements for fire protection design (see 4.4, 4.5), fire evacuation (see Chapter 7), automatic fire alarm system (see Chapter 8), fire protection Water supply and fire extinguishing system (see Chapter 9), ventilation and fire prevention and smoke prevention (see Chapter 10) and other chapters. Please note that some of the contents of

this document may involve patents. The issuing agency of this document is not responsible for identifying patents. This document was proposed and managed by the National Nuclear Energy Standardization Technical Committee (SAC/TC58). Drafting organizations of this document. China Nuclear Power Engineering Co., Ltd., China General Nuclear Power Engineering Co., Ltd., Shanghai Nuclear Engineering Research and Design Institute Co., Ltd. The main drafters of this document. Du Shuhong, Tan Guangping, Liu Wenhua, Wang Le, Ma Guojian, Zhang Chen, Zheng Guanghui, Zhu He, Song Lei, Ren Zhaoying, Tan Lishi, Feng Jinqi, Li Jing, Huang Yao, Wang Dong, Yuan Wei, Chen Huaiyu, Li Yanli, Chen Lin, Guan Wei, Lin Wuqing, Zhang Lu, Cai Zhou, Wang Zhaohui, Wang Jinlong, Shen Jianyu, Hu Bei. Code for fire protection design of nuclear power plant

1 Scope

GB/T 22158-2021 is the Chinese national standard on code for fire protection design of nuclear power plant, 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 11 October 2021 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2022. Classification: ICS 27.120.20, CCS F69. 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 the internal fire protection and explosion-proof design of nuclear power plants, mainly including the general requirements for fire protection design and the protection of the general layout. Fire design, fire prevention and limitation of fire spread, fire evacuation, automatic fire alarm system, fire water supply and fire extinguishing system, ventilation, fire prevention and prevention Smoke exhaust, fire safety analysis, internal explosion-proof design, and fire protection design requirements for key areas and equipment, etc. This document is applicable to newly built land-based fixed thermal neutron reactor nuclear power plants in China. Other types of nuclear power plants and nuclear facilities can refer to this regulation. Fan carries on the design. This document is mainly aimed at the internal fire protection of important nuclear safety buildings (structures) (such as nuclear island plants, important plant water system pump rooms and corridors, etc.) And explosion-proof design, the fire protection design of conventional islands and supporting facilities and workshops meets the requirements in Chapter 4, Chapter 5 and Chapter 13 of this document (specially It specifically refers to the requirements of important nuclear safety structures (except for the requirements) on the basis of compliance with other relevant domestic design standards.

2 Normative references

The content of the following documents constitutes an indispensable clause of this document through normative references in the text. Among them, dated quotations Only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to This document.

GB/T 18380 (all parts) Cable and optical cable burning test under flame conditions

GB/T 19216 (all parts) Cable and optical cable line integrity test under flame conditions

GB/T 40620 Nuclear Power Plant Fire Hazard Analysis Guide

GB 50016 Code for fire protection of building design

GB 50058 Code for Design of Electric Power Installations in Explosive Hazardous Environments

GB 50084 Design Code for Automatic Sprinkler System

GB 50140 Code for Design of Building Fire Extinguisher Configuration

GB 50151 Code for design of foam fire extinguishing system

GB 50219 Technical Specification for Water Spray Fire Extinguishing System

GB/T 50294 Code for General Plan and Transportation Design of Nuclear Power Plant

GB 50745 Code for fire protection design of conventional islands in nuclear power plants

GB 50974 Technical Specification for Fire Water Supply and Hydrant System

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Flame retardant The property of an object to extinguish, reduce or significantly retard the combustion of certain materials.

3.2 Firearea In the factory building or part of the factory building constructed to prevent the fire from spreading within the specified time, the fireproof zone can be composed of one or more rooms.