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

GB/T 15474-2010

Replacing GB/T 15474-1995; GB/T 15475-1995

**Classification on instrumentation and control function
important to safety for nuclear power plants**

核电厂安全重要仪表和控制功能分类

(English Translation)

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Appendix A (informative) Applicable standards and technical requirements for different categories of function

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Annex C (informative) nuclear power plant instrumentation and control important to safety and the typical functions of the system

Foreword

This revised standard adopts IEC 61226-2005 "nuclear power plant instrumentation and control systems important to safety instrumentation and control the functional classification" (in English), the main difference as follows.

--- Remove IEC 61226-2005 foreword, introduction of revised IEC 61226-2005.

--- Revised Chapter 1, "scope" of the content.

--- Delete Chapter 3, "Terms and Definitions", "Common Cause Failures 3.2, 3.5 Diversity 3.6 device features 3.7, 3.9 ergonomics, Plant states 3.11, 3.12 performance, redundancy 3.14, 3.15 Security Group, a single fault 3.18, 3.19 system, type test 3.20 Inspection ", these terms are well known in the nuclear power industry, we need to redefine this standard. Add" instrumentation and control function "and the term definition.

--- Delete Chapter 4, "Acronyms."

--- 5.1 ~ 5.3.1 content according to the actual situation of China's nuclear power projects integrated into Chapter 4, "classification principles and methods."

--- The contents 7.1 Table 1 are attached as Appendix A.

Appendix B lists the number of this standard and IEC 61226-2005 reg reg control list

numbered.

This standard replaces GB/T 15474-1995 "nuclear power plant instrumentation and control systems and security equipment power rating" and GB/T 15475-1995 "nuclear power plant instrumentation and control systems and power supply equipment quality assurance rating." this standard GB/T 15474-1995-based, integrated content GB/T 15475-1995 be revised.

This standard compared with GB/T 15474-1995, in addition to editorial changes outside the main technical changes are as follows.

- Modify the standard name;
- Modify the scope of application;
- Added "Chapter 3 Terms and definitions";
- The instrumentation and control systems and their electrical equipment safety classification is amended as nuclear power plant instrumentation and control systems important to safety according to their function the importance of security classification, and gives the principles and methods of classification, functional class description, classification procedures and technical requirements.

This standard Annex A, Annex B, Annex C is informative appendix.

The standard proposed by China National Nuclear Corporation.

This standard by the National Standardization Technical Committee on nuclear instrumentation.

This standard was drafted. Institute of Nuclear Industry Standardization.

Drafters of this standard. Choi Jung north, Zhang Jian Qing, Wang Gensheng.

This standard replaces the standards previously issued as follows.

- GB/T 15474-1995;
- GB/T 15475-1995.

Introduction

Nuclear power plant safety is based on the functions of the various categories of security settings can be guaranteed. Different functions of systems, equipment design, construction and operation Process to comply with different standards and norms. To this end, International Atomic Energy Agency (IAEA) for nuclear power plant safety instrumentation and control systems important EC (including computer software) should be classified on its safety significance, and determine the appropriate technical requirements and quality requirements, the instrument and control system System design, construction and

operation of its security importance consistent.

GB/T 15474-1995 "nuclear power plant instrumentation and control systems and their electrical equipment safety classification" is a nuclear power plant instrumentation and control systems According to the importance of safety equipment into the security level, safety and non-safety related equipment important equipment for each level provides assurance function, can by guarantees, performance guarantees, the ability to ensure resistance to environmental and quality assurance requirements. GB/T 15474-1995 Reference IEC 61226.

1993 "Nuclear power plant safety instrumentation and control important functional class" (in English) and RCC-P. 1984 "900MW PWR nuclear power plant system design Design and construction rules "establishment, but the IEC and RCC-P for instrumentation and control systems, the concept of security classification of different equipment, different classification methods, so GB/T 15474-1995 There are many problems in the course.

In recent years, IEC standard architecture for nuclear power plant instrumentation and control systems important to safety made adjustments, and formed a IEC 61513 "Nuclear Power plant instrumentation and control systems important to safety - General requirements "(in English) for the first level, IEC 61226" Nuclear power plant instrumentation and control systems important to safety tester Control functional classification "(in English) as the second level, the relevant equipment standards for the third-level nuclear power plant engineering standards. IEC 61226.

2005 follows the IAEA Safety Standards NS-R-1 proposed nuclear power plant safety design requirements, and extends the Safety Guide NS-G-1.3 on real the importance of security classification policy applied function, the nuclear power plant instrumentation and control systems important to safety (including safety systems and safety related systems) power can be classified according to their safety significance (A Class A, B, or C), and the provisions of the various types of functions and features, performance, reliability, resistance equipment Relevant technical requirements and quality requirements for environmental capacity.

This revised standard adopts IEC 61226:2005 "Nuclear power plant instrumentation and control systems important to safety instrumentation and control the functional classification" (in English), not only correct N GB/T 15474-1995 IEC 61226 for the deviation, but also with reference to other existing standards IEC series of standards revision phase coordination.

Nuclear power plant safety instrumentation and control important functional classification

1 Scope

This standard specifies the classification of the functions of systems and equipment important to safety instrumentation and control functions and the implementation of nuclear power plants, and identified Technical requirements for each category and quality in

functionality, reliability, performance, durability and environmental aspects of the seismic performance assurance requirements.

This standard applies to all instrumentation and control systems important to safety, the new nuclear power plant (including safety systems and safety-related instrumentation and control systems) design.

Note: There is a reference power plant has been carried out and the design of new nuclear power plants according to the actual situation, the implementation of this standard may be conditionally.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 12727 Nuclear power plant safety systems of electrical equipment qualification (GB/T 12727-2002, IEC 60780:1998, MOD) GB/T 13625 Nuclear power plant safety systems of electrical equipment seismic qualification (GB 13625-1992, eqvIEC 60980. 1988) GB/T 13626 single failure criterion is applied to nuclear power plant safety systems (GB/T 13626-2008, IEEE379-2000, MOD) GB/T 13630 nuclear power plant control room design (GB/T 13630-1992, eqvIEC 60964) EJ/T 1143 nuclear power plant control room design features analysis and distribution (IEC 61839, MOD) HAF003 quality assurance nuclear power plant safety requirements HAD102/14 nuclear power plant safety related instrumentation and control systems

3 Terms and Definitions

The following terms and definitions apply to this standard.

Anticipated operational occurrences in the nuclear power plant operating lifetime is expected to occur once or several times during the operation of the various deviations from normal operation; because of the design has been adopted Take appropriate measures, such events important to safety Buzhi Yu cause serious damage to the items, it will not lead to accident conditions.

Design basis accidents designbasisaccident; DBA Nuclear power plant design criteria determined by taking those accident conditions targeted measures in the design.

Design basis events designbasisevent; DBE to determine the equipment, systems and structures, performance requirements, and hypothetical abnormal events used in the design.

Instrumentation and control functions I Control of the process to determine the