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

GB 12726-1991

Replacing GB/T 12726.1-1991

**Nuclear power plants -- Instrumentation important to safety --
Radiation monitoring for accident and post-accident conditions
-- Part 1: General requirements
(English Translation)**

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Foreword

GB/T 12726 "after the nuclear power plant safety is important instruments accident and radiation monitoring" is divided into four parts.

- Part 1. General requirements;
- Part 2. gaseous effluents and ventilation equipment for continuous monitoring of radioactivity in the offline;
- Part 3. High range area gamma continuous monitoring equipment;
- Part 4. Process flow tube or inner tube beside continuous radioactivity monitoring equipment.

This section GB/T Part of 112,726.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This Part replaces GB/T 12726.1-1991 "after the nuclear power plant accident and radiation monitoring equipment Part 1. General requirements", and GB/T 12726.1-1991 main changes are as follows.

- The equipment is divided into three typical types, and clearly the responsibility of the user and the manufacturer;
- Remove the equipment in the "post-accident conditions satisfactory 100d run over," the requirements of IEC 61226 is required to draw Class A is divided into the implementation of Security important functions equipment, in addition to be calculated MTBF external failure modes and effects analysis should be carried out (FMEA);
- Clear electromagnetic interference requirements and performance standards;

- A detailed description of the user interface, the interface device and sampling requirements;
- A clear increase in quality requirements;
- Remove the pump maintenance interval requirements;
- Revised standard test conditions, increase traffic conditions, reduce warm-up time;
- Test requirements under standard test conditions made a comprehensive revision.

This section uses the translation method is equivalent to using IEC 60951-1. Radiation monitoring after 2009 "Instrumentation important to safety of nuclear power plants for accident and Part 1. General requirements. " Consistency correspondence between this part of international documents and normative references of our files are as follows.

- GB/T 156-2007 standard voltage (IEC 60038:2002, MOD);
- GB/T 2423.10-2008 Environmental testing for electric and electronic products Part 2. Test methods Test Fc Vibration (sinusoidal) (IEC 60068-2-6:1995, IDT);
- GB/T 2423.34-2005 Environmental testing for electric and electronic products Part 2. Test methods - Test Z/AD. temperature/wet of the combined cycle test (IEC 60068-2-38. 1974, IDT);
- GB 4208-2008 housing protection (IP Code) (IEC 60529:2001, IDT);
- GB/T 12727-2002 nuclear power plant safety systems of electrical equipment qualification (IEC 60780:1998, MOD);
- GB/T 13625-1992 nuclear power plant safety systems seismic qualification of electrical equipment (IEC 60980. 1989, eqv);
- GB/T 15474-2010 nuclear power plant instrumentation and control functions important to safety classification (IEC 61226:2005, MOD);
- GB/T 17626.2-2006 Electromagnetic compatibility - Testing and measurement techniques - Electrostatic discharge immunity test (IEC 61000-4-2. 2001, IDT);
- GB/T 17626.3-2006 Electromagnetic compatibility - Testing and measurement techniques RFEMS test (IEC 61000-4-3:2002, IDT);
- GB/T 17626.6-2008 Electromagnetic compatibility - Testing and measurement techniques Immunity to conducted disturbances induced field (IEC 61000-4-6:2006, IDT);
- GB 17799.4-2012 Electromagnetic compatibility - Generic emission standard for industrial environments (IEC 61000-6-4:2011, IDT);
- EJ/T 529-1990 for nuclear power plant systems important to safety digital computer (IEC

60987. 1989, eqv);

--- NB/T 20054-2011 nuclear power plant safety instrumentation and control systems important to perform the function of computer software class A (IEC 60880:2006, MOD);

--- NB/T 20055-2011 nuclear power plant safety instrumentation and control systems important to perform class B and class C function computer software (IEC 62138:2004, MOD).

For ease of use, this section made the following editorial changes.

--- Delete foreword international standards;

--- With a decimal point instead of the original international standard as the decimal point, "";

--- Will be in "2 Normative references" existing national standards and industry standards relevant international standards to our standards;

--- Will be in "2 Normative references" "IEC 61000-4-12:2006" is amended as "IEC 61000-4-18:2006";

--- ISO 2889 version of 2010's by 2009 as amended;

--- In 5.3.1.1, the last sentence of paragraph 1 of the "reference response uncertainty" is corrected to "reference source of uncertainty";

--- Retain only the contents of the current used in the voltage and frequency of the AC power;

--- In 4.18, delete the words "the application of the kinetic energy of the aerosol or iodine sampling head for sampling" content, and because it requires a ISO 2889:2010 requirements are different;

--- IEC standard 5.3.6.2, it should be the first one for the segment of the contents of paragraph 2 of 2 "in order to obtain independent data", now Move it to the first one.

This part of the National Nuclear Instrument Standardization Technical Committee (SAC/TC30) and focal points.

This section is drafted. Shanghai Nuclear Engineering Research and Design Institute.

Introduction

a) standard technical background, major publications and organizations this section focuses specifically on accident and after the accident radiation monitoring system in use.

The series of standards for user to a specific plant radiation monitoring system technical requirements, the manufacturer may be used in the series of standards Determine the product characteristics required for the development of accident conditions of the system.

Some detailed characteristics of the instrument, such as measuring range, in response to the energy and environmental conditions Pieces shall be determined according to the specific application. In this case, the standard specifies only specific request, but does not claim itself will be described.

This section is important to safety after the accident radiation monitoring instruments in a standard series of standards. This series of standards consists of the following components.

--- GB/T 12726.1 important instrument for nuclear power plants accident and after the accident radiation monitoring - Part 1. General requirements

--- GB/T 12726.2 important to safety of nuclear power plants after the accident and radiation monitoring instrumentation - Part 2. gaseous exhaust stream and pass Wind Equipment for continuous monitoring of radioactivity in the offline (GB/T 12726.2-2013, IEC 60951-2:2009, IDT)

--- GB/T 12726.3 important to safety of nuclear power plants after the accident and radiation monitoring instruments - Part 3. High range area gamma even Continued monitoring device (GB/T 12726.3-2013, IEC 60951-3:2009, IDT)

--- GB/T 12726.4 important to safety of nuclear power plants after the accident and radiation monitoring instrumentation - Part 4. inner tube or pipe flow process Equipment for continuous monitoring radioactivity next (GB/T 12726.4-2013, IEC 60951-4:2009, IDT)

b) in the SAC/TC30/SC2/SC3 standard structure in the current standard status GB/T 12726 series of standards is in the third level in SC2 standard hierarchy. GB/T 12726 series of standards for use in accident and design and test conditions - radiation monitoring equipment to provide guidance after the accident. SC2 and SC3 other standards developed for use in normal operating Radiation monitoring instruments under the conditions provided guidance. GB/T 7165 series of standards for the off-line continuous monitoring of radioactivity in gaseous effluents under normal conditions it specifies the requirements for equipment. GB/T 10253 is a continuous off-line monitoring normal conditions of liquid radioactive effluents device specifies the requirements.

IEC 60768 for the continuous monitoring of the normal operation and anticipated operational occurrences within the process stream or a bypass pipe radioactive device specifies the requirements. most After, ISO 2889 provides guidance for the gas and particle sampling. Table 1 shows the relationship between these different standards of radiation monitoring.

Table 1 SAC/TC30/SC2/SC3 standard series

Organization ISO developed SC2- process and safety monitoring After sampling circuit and a range of methods for accident and normal conditions and anticipated operational occurrences SC3- and radiation protection Effluent monitors Zone sampling gases, particulates and Iodine monitoring (offline) ISO 2889 GB/T 12726.1 and GB/T 12726.2