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NATIONAL STANDARD OF

THE PEOPLE'S REPUBLIC OF CHINA

中华人民共和国国家标准

GB 18871-2002

Basic Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources

电离辐射防护与辐射源安全基本标准

Issued on October 08, 2002 **Implemented on April 01, 2003**

Issued by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China

Contents

Foreword

All technical contents of this standard are mandatory.

This standard is revised for national current basic standard for radiation protection according to "International Basic Standards for Protection Against Ionizing Radiation and for the Safety of Radiation Sources" (No. 115 safety series books of International Atomic Energy Agency, 1996 edition), approved and jointly issued by six international organizations (namely: Food and Agriculture Organization, International Atomic Energy Agency, International Labor Organization, Nuclear Energy Agency of Organization for Economic Cooperation and Development, Pan America Health Organization and World Health Organization).

The revision for basic standard of national current radiation protection took full consideration of the experience of basic standard implementation of current radiation protection for more than ten years and national current actual situation according to above international organization standard, and reserved those technical contents in current standard suitable for national condition through practice proof and in accordance with international organization standard.

This standard simultaneously replaced GB 4792-1984 and GB 8703-1988 from issuance day.

Annexes A, B, C, D, E, F and J of this standard are normative, and Annexes G and H are informative.

This standard was jointly proposed by (arrangement with department name stroke) Ministry of Health of the People's Republic of China, State Environmental Protection Administration of the People's Republic of China and the original China Nuclear Industry Corporation.

Drafting organization of this standard: joint drafting group and the secretary organization of drafting group is Institute for Standardisation of Nuclear Industry.

Chief drafting staffs of this standard: Pan Ziqiang (the following is arranged as family name stroke)

Ye Changqing, Zhan Yansheng, Wu Deqiang, Zheng Junzheng, Jin Jiaqi, Xia Yihua and Zhuo Fengguan.

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GB 18871-2002
Replace GB4792-1984
GB8703-1988

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1 Scope

This standard specifies the basic requirements of ionizing radiation protection and radiation source safety (hereinafter referred to as "protection and safety").

This standard is applicable to the protection of ionizing radiation exposure received by personnel in practice and intervention as well as source safety in practice.

This standard is not applicable to the protection for detriment to personnel possibly caused by nonionizing radiation (such as microwave, ultraviolet, visible light and infrared radiation).

2 Definitions

See Annex J (Normative) for the terms and definitions adopted by this standard.

3 General Requirements

3.1 Application

3.1.1 Practice

The practice applicable to this standard shall include:

a) Source production and radiation or radioactive substance application in medical, industry, agriculture or teaching and research, including various activities related to application involved or possibly involved in radiation or radioactive substance exposure;

b) Generation of nuclear energy, including various activities involved or possibly involved in radiation or radioactive substance exposure in nuclear fuel cycle;

c) Practice involved in natural source exposure and controlled according to regulatory authority specification;

d) Other practices specified by regulatory authority.

3.1.2 Source

3.1.2.1 The source applicable to the requirements of this standard for practice shall include:

a) Radioactive substance and component containing radioactive substance or generating radiation, including consumer product, sealed source, unsealed source and radiation generator;

b) Device and facility with radioactive substance and equipment generating radiation, including irradiation installations, mine or mill processing radioactive ores, installation processing radioactive substances, nuclear installation and radioactive waste management facility;

c) Other sources specified by regulatory authority.

3.1.2.2 The requirements of this standard shall be applied to each radiation source in device or facility; if necessary, the requirements of this standard shall be applied to whole device or facility considered as single source according to regulatory authority specification.

3.1.3 Exposure

3.1.3.1 It shall be the exposure applicable to the requirements of this standard for practice, and shall refer to occupational exposure, medical exposure or public exposure caused by relevant practice or source in practice, including normal exposure and potential exposure.

3.1.3.2 Under general condition, the natural source exposure shall be considered as a kind of prolonged exposure; if necessary, the requirements for intervention of this standard shall be followed. Under the following various conditions, the requirements for intervention of this standard shall be followed if it is not eliminated or the relevant practice or source is not exempted:

a) Public exposure caused by discharge of effluent generated by practice of natural sources or radioactive waste disposal;

b) Occupational exposure of worker caused by exposure of natural sources under the following conditions:

1) Radon exposure of worker owing to working demand or direct relation with working, regardless if the exposure is higher or lower than the action level of remedial action under prolonged exposure condition of radon in working space (see Annex H (Informative));

2) Though the radon exposure of worker during working is not regular, the exposure size is higher than the action level of remedial action under prolonged exposure condition of radon in working space (see Annex H (Informative));

3) Exposure of natural sources received by operating personnel during jet airplane flight process;

c) Exposure of other natural sources specified by regulatory authority and needed to follow the requirements of this standard for practice.

3.1.4 Intervention

3.1.4.1 The intervention conditions applicable to this standard shall be:

a) Emergency exposure condition requiring adopting protective action, including:

1) Accident conditions and emergency circumstances have implemented

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