

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

**HJ/T 61-2001**

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**Technical specification for radiation environmental monitoring  
(English Translation)**

**Issued on: January 1, 1970**

**Implemented on: January 1, 1970**

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**Issued by: Ministry of Ecology and Environment**

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### 1 Scope of application

This standard specifies the main technical requirements for radiation environmental quality monitoring and radiation source environmental monitoring, including on-site monitoring, sample collection, sampling Product preprocessing and management, monitoring and analysis methods, data processing and result presentation, quality assurance and report writing.

This standard is applicable to radiation environmental quality monitoring and radiation source environmental monitoring organized by the competent departments of ecological environment at all levels. Other departments opened the radiation environment monitoring of the exhibition can be implemented by reference.

## 2 Normative references

This standard refers to the following documents or their clauses. For dated reference documents, only the dated version is applicable to this standard.

For undated references, the latest version (including all amendments) is applicable to this standard.

GB 5749 Sanitary Standard for Drinking Water GB 6249 Nuclear Power Plant Environmental Radiation Protection Regulations GB 8999 General requirements for quality assurance of ionizing radiation monitoring GB 17378.3 Marine Monitoring Specification Part 3: Sample Collection, Storage and Transportation GB 18871 Basic standard for ionizing radiation protection and radiation source safety GB 23726 Radiation Environmental Monitoring Regulations for Uranium Mining and Metallurgy GB/T 4882 Data Statistical Processing and Interpretation Normality Test GB/T 4883 Statistical processing and interpretation of data Judgment and processing of outliers in normal samples GB/T 4889 Statistical Processing and Interpretation of Data Estimation and Testing of the Mean and Variance of Normal Distribution GB/T 8170 Numerical rounding rules and the expression and determination of limit values GB/T 17989.2 Control Chart Part 2: Conventional Control Chart GB/T 27418 Evaluation and Expression of Uncertainty in Measurement HJ 641 Technical Specification for Compiling Environmental Quality Report HJ 969 Technical Specification for Background Investigation of Radiation Environment Before Operation of Nuclear Power Plant HJ 1127 Environmental sample gamma nuclide measurement technical specification in emergency monitoring HJ 1128 Nuclear Power Plant Nuclear Accident Environmental Emergency Monitoring Technical Specification HJ 1157 Technical Specification for Environmental Gamma Radiation Dose Rate Measurement IAEA/AQ/48 Determination and Interpretation of Characteristic Limits for Radioactivity Measurements

## 3 Terms and definitions

The following terms and definitions apply to this standard.

Radiation environmental quality the pros and cons of the radiation level in the environment. In this standard, it is specific to a limited environment, according to different environmental conditions, choose Some comparable key radiation parameters are used as indicators to measure the quality of the radiation environment in order to describe and compare the quality of the radiation environment and judge.

Background investigation Before the feeding (or charging) operation of the new facility or before the start of the practice of a certain facility, the radiation that already exists in the environment of a specific area Level, the content of radionuclides in the environmental medium, and the overall adjustment of environmental parameters and social conditions required to evaluate public doses check.

Radiation environmental monitoring in order to understand the level of radioactivity in the environment, by measuring the level of radiation in the environment (external exposure dose rate) and the radioactive nuclear in the environment the activity of interpreting the measurement results is also called environmental radiation monitoring. Narrowly speaking, radiation environment monitoring refers specifically to ionizing radiation environment Monitoring is also called environmental radioactivity monitoring; the broad sense of radiation environmental monitoring also includes electromagnetic radiation environmental monitoring. This standard refers to radiation in a narrow sense Environmental monitoring.

Radiation environmental quality monitoring in order to comprehensively, accurately and timely reflect the status quo and change trend of environmental quality in a specific area, provide scientific research for environmental management, environmental planning, etc.

Radiation environment monitoring based on scientific research. Generally implemented by government departments.

Source environmental monitoring in order to meet the needs of environmental supervision and management and the needs of the public's environmental information, the radiation environment for specific radiation sources or radiation activities is carried out.

Environmental monitoring.

Surveillance monitoring the supervision and management department aims at a specific radiation source, in order to supervise whether the radiation source has an impact on the surrounding environment or whether the degree of impact is under control the main purpose of monitoring within the regulatory standards is to provide a basis for supervision and management and administrative law enforcement.

Environmental monitoring programme Environmental monitoring program is also called environmental monitoring program, referred to as monitoring program or monitoring program. It is a guide for specific monitoring objectives and tasks Plan documents that regulate the implementation of monitoring activities. The content of the plan mainly includes sampling points, monitoring items, monitoring frequency and measurement requirements, etc.

The formulation of the monitoring plan should always focus on the purpose of monitoring.

Emergency monitoring in emergency situations, monitoring is carried out for the timely identification of radioactive contamination and radiation levels and for emergency decision-making support.

(Radioactive) effluents monitoring in order to monitor or ascertain the quantity, type and other characteristics of the radioactive effluent discharged from the radiation source into the environment, the effluent is imported at the discharge port.

Perform sampling, analysis or other measurement monitoring activities.

### 3.10

#### Contrast site

The environmental impact of the monitored radiation source (or accompanied by radiation activity) can be ignored, and the monitoring points that can maintain the original environmental characteristics for a long time, such as rivers the monitoring results of the upstream of the flow and the upwind direction of gaseous emissions can be maintained at the background level, which can be used as a comparative reference for the monitoring results around the radiation source.

### 3.11

Representative sample the collected samples can fully reflect the overall attributes and characteristics of the environmental media at the sampling site concerned by the monitoring plan.

### 3.12

#### Indicator biology

Organisms capable of highly enriching radioactive materials in the environment.

### 3.13

Metrological instrument Devices, instruments, measuring tools and standard materials used to unify the measured value can be used to directly or indirectly measure the measured value of the object.

## 4.1.1 Purpose

Obtain the radiation background level in the region, accumulate historical monitoring data of the radiation environment quality; grasp the status and change trend of the regional radiation environment quality Potential; judge the radioactive pollution in the environment and its source; report the quality of the radiation environment.

Continuously carry out regular and fixed-point environmental quality monitoring, and grasp the radiation environment background data in the area, which can provide information on the environmental radiation level and the public Dose provides the basis for evaluation, and provides necessary information when evaluating the impact of nuclear or radiation emergencies/incidents (including overseas accidents/incidents) on the public and the environment.

An indispensable reference for comparison.