

HJ

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**Technical specification for operation of radiation environmental
air automatic monitoring station**

辐射环境空气自动监测站运行技术规范

(English Translation)

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Foreword

To implement the "Environmental Protection Law of the People's Republic of China" and the "People's Republic of this standard is formulated for the operation and maintenance and quality assurance of the ambient air automatic monitoring station.

This standard specifies the composition and function, operation and daily inspection,

maintenance and repair, data processing and reporting of the automatic monitoring station for radiation ambient air.

Technical requirements such as delivery, quality assurance and documentation.

This standard is formulated by the Department of Ecological Environment Safety Supervision Department, Regulations and Standards Division.

This standard was drafted. Zhejiang Radiation Environmental Monitoring Station (radiation environmental monitoring technology center).

This standard is approved by the Ministry of Ecology and Environment on December 24, 2018.

This standard has been implemented since March 1, 2019.

This standard is interpreted by the Ministry of Ecology and Environment.

Radiation ambient air automatic monitoring station operation technical specification

1 Scope of application

This standard specifies the composition and function, operation and daily inspection, maintenance and repair, data processing and reporting of the automatic monitoring station for radiation ambient air.

Technical requirements such as delivery, quality assurance and documentation.

This standard applies to the national control radiation environment air automatic monitoring station constructed by the Ministry of Ecology and Environment. Radiation environmental monitoring agencies and other institutions at all levels the use of automatic monitoring stations to monitor the ambient air quality of the irradiated environment can also be referred to for implementation.

2 Normative references

The provisions contained in the following standards and specifications, which are cited in this standard, constitute the provisions of this standard and have the same effect as this standard. Where does not indicate the date the latest version of the referenced document applies to this standard.

HJ/T 61 Radiation Environmental Monitoring Technical Specification HJ/T 22 General provisions for sampling airborne radioactive materials QX/T 45 Ground meteorological observation specification Part 1. General

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1 Radiation environment automatic monitoring

The process of direct measurement, processing and analysis of the radiation environment using continuous automatic radiation monitoring equipment.

3.2 Radiation ambient air automatic monitoring station

Fixed monitoring station for environmental gamma radiation, continuous monitoring of meteorological conditions and automatic sampling of air samples.

3.3 Stability

Measuring the stability of the instrumentation during operation.

3.4 Data acquisition rate data acquisition rate

The number of effective monitoring data actually obtained by the unit operating time of the radiation environment automatic monitoring station shall be monitored by the unit running time.

The ratio of the total number of data.

4.1 Composition

Radiation ambient air automatic monitoring station generally consists of one or more radiation environment monitoring equipment (dose rate monitor, gamma spectrometer, etc.) Sample equipment (aerosol, sediment, sampler in air iodine, etc.), meteorological monitoring equipment, control equipment, data acquisition and processing equipment and infrastructure and other components. Sampling equipment and weather monitoring equipment can be selected as needed.

4.2 Features

The main function of the radiation environment air automatic monitoring station is to automatically and continuously monitor the environmental gamma radiation level and meteorological conditions, real-time acquisition, Process and store monitoring data, and transmit monitoring data, device health, and other information to the data aggregation center in real time through a wired or wireless network.

Understand the quality of the radiation environment and trends, and release monitoring data. Radiation ambient air automatic monitoring station with sampling equipment, the aerosol, sediment and iodine in the air are collected, and the collected samples are sent to

the laboratory for analysis.

5.1.1 Air absorbed dose rate monitoring

5.1.1.1

The annual data acquisition rate of continuous monitoring of air absorbed dose rate should reach more than 90%. Raw data from dose rate monitor After reading, no technical processing such as smoothing, maxima, and minima deletion may be performed.

5.1.1.2

The mean value of the absorbed air dose rate shall be recorded and calculated at specified intervals, and the mean shall be the arithmetic mean over the effective collection interval.

The frequency of collection of air absorbed dose rate is set according to actual needs. The general monitoring collection interval can be set to 5 minutes.

5.1.1.3

When the monitoring result is abnormal, it should be alarmed in time. The alarm threshold is generally set to the bottom plus n standard deviation, the background can be air the absorbed dose rate is 5 minutes mean or hourly average, n is generally 3~5; the alarm threshold can also be set to a single dose rate according to the previous years of operating experience.

When calculating the background mean, abnormal data due to factors other than natural factors should be removed. If there is a change in the position or changes in the surrounding environment, recalculate. The alarm threshold can be set at full time or separately according to the precipitation period and the non-precipitation period.

5.1.1.4

When an abnormal alarm occurs, the abnormal data analysis shall be performed according to Section 7.2. Start sampling of the automatic monitoring station for radiation ambient air if necessary Equipment for sample collection.

5.1.2 gamma radionuclide identification

5.1.2.1 Set up a number of (4~10) regions of interest as needed, each of which should contain one or more of the main features of the nuclide of interest.

Volume peak. The counts of each region of interest are counted according to the set time interval, and compared with the background value, and an alarm is generated when an abnormality occurs.

5.1.2.2 When environmental radioactivity anomalies occur, preliminary judgments should be made on the types of nuclide, including but not limited to ^{232}Th , ^{226}Ra , ^{40}K , artificial nuclides include, but are not limited to, ^{60}Co , ^{137}Cs , ^{131}I , ^{192}Ir , ^{75}Se .