

HJ

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Technical Specifications for Environmental Emergency Monitoring in Nuclear Power Plant Accidents

核动力厂核事故环境应急监测技术规范

(English Translation)

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Foreword

To implement the Environmental Protection Law of the People's Republic of China, the Law of the People's Republic of China on the Prevention and Control of Radioactive Pollution, and the Nuclear the Safety Law and the Emergency Response Law of the People's Republic of China regulate the environmental emergency monitoring of nuclear accidents in nuclear power plants. This standard is specially formulated.

This standard specifies the general principles, content, methods and technical requirements for environmental emergency monitoring of nuclear accidents in nuclear power plants, and is recommended for implementation.

In actual work, considering the current technical level of emergency monitoring in our country, methods and technical routes different from this standard can be used, but it must be verified.

It is clear that the methods and routes used have at least the same technical level as this standard.

The appendix of this standard is an informative appendix.

This standard is issued for the first time.

This standard is formulated by the Department of Nuclear Facilities Safety Supervision and the Department of Regulations and Standards of the Ministry of Ecology and Environment.

Drafting organizations of this standard. Nuclear and Radiation Safety Center of Ministry of Ecology and Environment, Radiation Environment Monitoring Technology Center of Ministry of Ecology and Environment, Tsinghua University, Radiation Environment Supervision Station of Anhui Province, Suzhou Thermal Power Research Institute Co., Ltd., Chinese Academy of Metrology, Heilongjiang Radiation Environment Supervision Station.

This standard was approved by the Ministry of Ecology and Environment on June 3, 2020.

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

Technical specifications for environmental emergency monitoring of nuclear accidents in nuclear power plants

1 Scope of application

This standard specifies the scope, layout, content, sample collection and management of emergency monitoring of off-site radiation environment when a nuclear accident occurs in a nuclear power plant.

Technical requirements for management and quality assurance.

This standard applies to the off-site environmental emergency monitoring implemented by off-site emergency organizations when a nuclear accident occurs in a nuclear power plant, and nuclear accidents occur in other nuclear facilities.

Therefore, the off-site environmental emergency monitoring can be implemented by reference.

2 Normative references

The content of this standard refers to the terms in the following documents. For undated reference documents, their valid versions are applicable to this standard.

GB 18871 Basic standard for ionizing radiation protection and radiation source safety GB/T 14583 Code for determination of environmental surface gamma radiation dose rate HJ/T 61 Technical Specification for Radiation Environmental Monitoring HJ 1009 Technical Specification for Operation of Automatic Radiation Ambient Air Monitoring Station

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1 Emergency response (action) emergency response (action)

Emergency actions taken to control or mitigate the consequences of a nuclear accident or radiation emergency.

3.2 Emergency monitoring

The emergency monitoring in the text of this standard refers to the off-site radiation environment monitoring performed when a nuclear accident occurs in a nuclear power plant.

3.3 Operational intervention level, OIL

A set of measurable radionuclide levels or gamma radiation levels in environmental or food samples corresponding to the general intervention level.

3.4 Early phase monitoring

It is expected that the radioactive material will be released soon or the radioactive material has begun to be released to the off-site radiation environmental monitoring.

This stage can be divided into two situations. before release and the beginning of release.

3.5 Intermediate phase monitoring

The release of radioactive materials has stopped until most of the radioactive materials have settled, and the prevention of additional exposure to residents is completed or is being implemented.

The off-site radiation environment monitoring activities conducted during the protection behavior stage.

3.6 Late phase monitoring

Off-site radiation environment monitoring activities during the recovery phase after the accident.

3.7 Automatic environmental radiation monitoring and air sampling station

A fixed station for automatic monitoring of environmental gamma radiation and automatic sampling of air samples, referred to as "fixed automatic station".

3.8 Portable environmental radiation automatic monitoring unit

A device for automatic monitoring of environmental gamma radiation that can be self-powered and can be quickly deployed to the site for networking monitoring, referred to

as "dropping automatic device".

4.1 Purpose

The main purpose of implementing emergency monitoring is to protect public health and radiation environment safety, and to provide data for accident judgment and emergency decision-making;

To determine the monitoring data required for implementing emergency protection actions; provide key data for environmental impact and dose assessment; provide radiation to the public Environmental monitoring data.

4.2 Principle

4.2.1

Graded response. The emergency monitoring should be determined according to different emergency states of nuclear accidents (plant emergency, site emergency, and off-site emergency).

The scope, monitoring items, and input power will be strengthened step by step with the improvement of the emergency state of nuclear accidents.

4.2.2

Close and distant. The spots should be arranged reasonably close to the radius of the nuclear accident, and should be arranged densely in the sensitive areas of the dominant wind and downwind direction.

4.2.3

Quick response. Emergency monitoring should respond as quickly as possible and obtain monitoring results as soon as possible.

4.2.4

Focus first. Emergency monitoring resources should be allocated according to the monitoring priorities at different stages, and the areas near the accident site should be implemented as a priority.

A monitoring project of the operational intervention level (OIL) in the living area of the affected residents.

4.2.5

Continuous monitoring. Emergency monitoring should continuously provide monitoring data in a specific space.