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

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**Technical Guideline for Environmental Radiation Background
Survey of Nuclear Power Plants Before Operation**

核动力厂运行前辐射环境本底调查技术规范

(English Translation)

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1 National Environmental Protection Standard

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I preface

In order to implement the Environmental Protection Law of the People's Republic of China and the Law of the People's Republic of China on Prevention and Control of Radioactive Pollution, Radiation pollution, improve the environment, standardize the investigation of the radiation environment of nuclear power plants, and develop this standard.

This standard specifies the technical requirements for the site selection of the new plant site of the nuclear power plant and the radiation environment background before the nuclear power plant operation.

Appendix A of this standard is a normative appendix.

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

This standard is mainly drafted by. Nuclear and Radiation Safety Center of the Ministry of Environmental Protection, China Radiation Protection Research Institute.

This standard has been implemented since January 1, 2019.

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

1 nuclear power plant before the operation of the radiation environment background technical specifications

1 Scope of application this standard specifies the technical requirements for the site selection of the new plant site of the nuclear power plant and the radiation environment background before the nuclear power plant operation.

This standard is applicable to the site selection of new sites in large nuclear power plants and the radiation environment background survey before the operation of nuclear power plants, small modules.

The nuclear power plant can be simplified according to the results of nuclear safety and environmental assessment.

2 Normative references the contents of this standard refer to the following documents or their terms. For undated references, the valid version is appropriate.

Used in this standard.

GB 6249 nuclear power plant environmental radiation protection regulations GB 11216 General requirements for quality assurance programs for nuclear facility effluents and environmental radioactivity monitoring HJ 493 Technical regulations for the preservation and management of water sampling samples HJ/T 61 Radiation Environmental Monitoring Technical Specification HAF003 Nuclear Power Plant Quality Assurance Safety Regulations

3 Terms and definitions the following terms and definitions apply to this standard.

3.1 Radiation in this standard, radiation refers only to ionizing radiation.

3.2 receiving water body receiving water body Environmental surface that accepts liquid effluent from nuclear power plants and disperses radionuclides in the effluent in their water the water body can be a sea, a river, a lake or a reservoir.

3.3 control point contrast site in areas where the effects of radioactive materials released by nuclear power plants can be ignored and the original environmental characteristics can be maintained for a long time.

Set monitoring points.

4 Investigation tasks and objectives

4.1 The site selection of the new site shall be carried out preliminary investigation of the radiation environment background; the radiation environment shall be carried out before the operation of the first unit of the new site.

Background investigation; before the operation of the unit built on the same site, the current situation of radiation environment should be investigated.

4.2 Location of the new site for radiation environment The purpose of the preliminary investigation is to provide radiation environment characteristics for the evaluation of site suitability.

material.

4.3 The radiation environment background survey before the operation of the first unit of the new site aims to obtain the environmental gamma-radiation before the operation of the nuclear power plant.

The data of the background level and its changes of important radionuclides in the emission level and environmental medium are the radiation after the operation of the nuclear power plant.

Environmental monitoring provides background information that can be compared and interpreted for the development of a radiation environmental monitoring program during the operation of a nuclear power plant Technical basis. According to the requirements of GB 6249, the survey should obtain at least the survey data of the last two years.

4.4 The purpose of the investigation of the current situation of radiation environment before the operation of the unit built at the same site of the nuclear power plant is to understand the pre-work Changes in the radiation environment after the operation of the process. According to the requirements of GB 6249, the survey should obtain at least the survey data of the most recent year.

25 Basic requirements for investigation

5.1 The following information should be collected to provide a basis for the development of the monitoring programme.

(1) Population, meteorology, hydrology, geology, natural resources, agriculture, animal husbandry and fishery within the scope of environmental impact assessment of nuclear power plants Information on aquaculture;

(2) Overview of nuclear facilities, uranium and antimony facilities in the nuclear power plant with a radius of 30km;

(3) An overview of the facilities that increase the natural radiation exposure caused by human activities within a radius of 15km within the nuclear power plant;

(4) Overview of the application of isotope production and unsealed radioisotopes within a radius of 15km from a nuclear power plant;

(5) Overview of the application of Class I and Class II radioactive sources within a radius of 5km from the nuclear power plant.

5.2 Radiation environmental monitoring results within the scope of environmental impact assessment of nuclear power plants should be collected as much as possible.

5.3 Initial site survey of the site address of the new site, the necessary on-site monitoring should be carried out, gamma-radiation/penetrating radiation of terrestrial environment the monitoring range of the dose rate generally takes a radius of 20km, and the monitoring range of other items generally takes a radius of 5 to 10km. Receiving water body Environmental media are generally sampled in the vicinity of the extraction and drainage ports.

5.4 Site selection of the new site Radiation environment The preliminary investigation is completed after more than 5 years of construction, if the site has occurred during the period Incidents with significant impacts on regional environmental radiation levels should be supplemented with investigations or re-investigations.

5.5 The monitoring scope of the radiation environment background survey before operation shall be carried out in accordance with the requirements of GB 6249.

5.6 Radiation environment before operation The background investigation is completed until the start of operation time is less than 5 years, if the site area has occurred during the period Incidents with significant impacts on the level of environmental radiation in the area should be supplemented by investigations or re-investigations.

5.7 Radiation environment before operation. After the end of the investigation, no more than 5 years after the completion of the investigation, the units that have been built at the same site will start to operate.

Refer to Section 5.6 Processing.

5.8 Before the operation of the radiation environment before the end of the investigation, more than 5 years after the start of operation, the latest information should be collected and must be carried out.

A supplementary investigation is required to analyze whether it is necessary to re-investigate.

6 Surveyed monitoring items and requirements

6.1 The overall planning of the site should be considered when setting up monitoring projects and monitoring points.

6.2 Principles of Monitoring Points