

HJ

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**Guidelines for environmental impact assessment of cooling
water intake and thermal discharge for nuclear power plants (on
trial)**

(English Translation)

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Foreword

In order 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 Water Pollution, and the Chinese People the Marine Environmental Protection Law of the Republic and the Law of the People's Republic of China on Environmental Impact Assessment, combined with the specific situation of nuclear power development, Standardize the environmental impact assessment of water and power plant construction projects to prevent and control the production of water and warm water from nuclear power plants Negative environmental impacts, protection of aquatic living resources and other resources, maintenance of ecological balance, and development of this standard.

This standard specifies the evaluation requirements for the environmental impact of the drainage and power of nuclear power plants.

Appendix A and C of this standard are normative appendices, and appendices B and D are informative appendices.

This standard is the first release.

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

This standard was drafted. Nuclear and Radiation Safety Center of the Ministry of Ecology and Environment.

This standard is approved by the Ministry of Ecology and Environment on August 21, 2019.

This standard has been implemented since October 01, 2019.

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

1 Nuclear power plant drainage and drainage environmental impact assessment guide

1 Scope of application this standard gives the environmental impact assessment methods and criteria for water intake and warm water drainage in coastal fixed nuclear power plants, and other criteria.

Refer to the main principles and methods of this guide for the environmental impact assessment of the type of nuclear power plant.

This standard is mainly used to guide the prediction and analysis of the environmental impacts of water intake and warm drainage at the new site of Binhai Fixed Nuclear Power Plant. Old factory New units, changes in engineering plans (such as changes in cooling methods and emission methods), changes in operating methods (such as increased water withdrawal) the amount or increase in heat emissions, etc.) and the retrospective analysis evaluation after the operation can also refer to the implementation of this standard.

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 3097 seawater quality standard GB 3838 Surface Water Environmental Quality Standard GB/T 12763.6 Marine survey specification Part 6. Marine life survey HJ 19 Environmental Impact Assessment Technical Guidelines Ecological Impact

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1 Cooling water intake facility cooling water intake structure

A facility that directs water into the overall structure of various parts of the cooling system to achieve the cooling function of the cooling system.

3.2 Rolling impingement

A physical phenomenon of biological damage or death caused by interception of cooling water into a cooling system. Roll Objects include those collected or trapped by the filter, excluding organisms that enter the cooling water facility through the filter, general individuals Larger.

3.3 Rolling entrainment

The process of passively carrying and transporting small aquatic organisms along with water intake into the cooling water system. Rolled organisms at high pressure, high temperature and the action of biocides causes damage or death.

3.4 Best Practice Technology best technique available

From the reduction of cooling water intake and warm drainage to the negative impact on the environment than the selected technology. The technology is considered to be built this is the best technology that is practical.

3.5 Important representative species important RIS

Important aquatic species, protective species and important ecological functions in areas affected by cooling water intake or warm drainage Species, etc., including the following species.

- a) important economic species (the top ten in the local economic species);
- b) rare and endangered species protected by the State;
- c) species that play an important role in the structure and function of ecosystems;
- 2d) Species that may cause blockage of water intake facilities and affect the safety of cold sources;
- e) a species having a food relationship with the above species (ad);
- f) species that are sensitive to temperature-sensitive species or sensitive to water abstraction.

3.6 Typical biological community

The typical biomes in this standard refer to the collection of important biological populations such as mangroves, coral reefs, seaweed fields, seagrass beds, and beet beds.

It is a group of animals and plants with relatively fixed life stages.

3.7 Primary analysis area

The main analysis area of the cooling water intake is the affected water area, and the main analysis area of the water intake is affected by the easy access.

The distribution of aquatic organisms affected by water is determined. The main analysis area of warm drainage influence refers to the temperature rise envelope area above 2 °C.

3.8 Far field analysis area far field study area

The outer edge of the main analysis area. The organisms in the far field analysis area may be affected by other environmental factors. For Marina the site, far-field analysis area usually refers to the water area within the range of 15km from the edge of the main analysis area to the radius of the site.

3.9 Thermal discharge

Cooling water and industrial process water for conveying waste heat, the water temperature of which is higher than the temperature of the natural water body in the discharge area.

3.10 Heat diffusion area

This area is a scientifically defined area of warm drainage that is dedicated to warm-water drainage mixing and diffusion outside the area.

The water temperature should meet the water quality requirements of the local water environment functional area.

4 RIS selection method

When there are more "important" or "representative" species and it is difficult to conduct a detailed study, some species can be selected (eg 2~15) as "important representative species". In general, RIS includes most sensitive fish, molluscs, and economic species.

And key species that play a role in ecosystem structure and function.

Select RIS as follows.

a) Water environmental function zoning. If the water function zoning designates a specific species as a protection object, then these species should be Designated as RIS;