

ICS 27.120.20

CCS F 73



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

GB 14587-2011

Replacing GB 14587-1993

**Technical requirements for discharge of radioactive liquid
effluents from nuclear power plant**

核电厂放射性液态流出物排放技术要求

(English Translation)

Issued on: February 18, 2011

Implemented on: September 1, 2011

**Issued by: Ministry of Environmental Protection, General Administration
of Quality Supervision, Inspection and Quarantine of the People's
Republic of China**

Table of Contents

Preface ..iv
1. Scope ..1
2 Normative references ..1
3 Terms and Definitions .1
4 General requirements ..2
5 Emissions management ..
6 Total discharge port setting
7 Monitoring and recording .3

Foreword

To implement the "People's Republic of China Environmental Protection Law" and "People's Republic of China Radioactive Pollution Prevention Law," prevention of radioactive pollution, Improve the quality of the environment, protecting human health, the development of this standard.

This standard specifies the nuclear power plant radioactive liquid effluent discharge technical requirements.

This standard is the "light water reactor nuclear power plant radioactive waste water discharge system technical requirements" Amendment (GB 14587-93) of.

This standard was first published in 1993, the original standard was drafted by the former Beijing Institute of Nuclear Engineering. This is the first revision. this the main contents of the revision as follows.

- Modify the standard name and scope;
- Modify the radioactive liquid effluent discharge management principles;
- Provides for the implementation of the total radioactive liquid effluent control and concentration control;
- An increase of emissions of radioactive liquid effluent concentration limits and online alarm threshold;
- Increase the technical requirements for radioactive liquid effluent discharge system design and operation management, especially optimization requirements;
- Modify the management of radioactive effluent discharge liquid composition, the total number of requests and monitoring the discharge port settings and so on. Especially for our

country Situation to be built riparian, shore or shore reservoirs and other inland nuclear power plant, increasing the specific requirements of the riparian, shore or shore of the reservoir.

From the date of implementation of this standard, "LWR nuclear power plant radioactive waste water discharge system technical requirements" (GB 14587-93) abolished.

This standard by the Ministry of Environmental Protection Science, Technology, Nuclear Safety Management Division organizations to develop.

This standard is mainly drafted by. Environmental Protection Department of Nuclear and Radiation Safety Center, Suzhou Institute of Thermal Engineering Co., Ltd.

This standard MEP January 25, 2011 for approval.

This standard since September 1, 2011 implementation.

The standard explanation by the Ministry of Environmental Protection.

Nuclear power plant radioactive liquid effluent discharge technical requirements

1 Scope

This standard specifies the nuclear power plant radioactive liquid effluent discharge technical requirements.

This standard applies to light water reactors and heavy water reactor nuclear power plant radioactive liquid effluent discharge system design and operation as well as radioactive liquid Effluent emissions management. Other types of nuclear power plants and nuclear reactors can refer to the use of facilities.

2 Normative references

The standard content of the following documents cited in the articles. For undated references, the effective version applies to this standard.

GB 6249 nuclear power plant environmental radiation protection regulations GB 11216 General requirements for nuclear facility effluent and environmental radioactivity monitoring quality assurance program GB 11217 General provisions for monitoring effluents at nuclear facilities GB 18871 ionizing radiation protection and safety of radiation sources basic standards

3 Terms and Definitions

The following terms and definitions apply to this standard.

Radioactive liquid effluent radioactive liquid effluents it refers to the practice of the source caused in liquid form into the environment of radioactive material be diluted and dispersed.

Nuclear power plant radioactive liquid effluent discharge system discharge system of radioactive liquid effluents from nuclear power plant it means nuclear power plant for the collection, storage, system monitoring and operation of emissions of radioactive liquid effluents.

System outfall discharge point of removal system it refers to the export of nuclear power plant radioactive liquid effluent discharge system.

Total outfall plant discharge point it means nuclear power plant drainage and environmental receiving water interface.

Emission limit discharge limit Meant to include the total annual emission limits and emission concentration limits. Allow nuclear power plant radioactive liquid effluents discharged to the environment of radioactivity Maximum, including the total annual emissions of the maximum concentration and maximum discharge.

Emissions control value authorized discharge limit Meant to include the total annual value of emission control and emission control concentration values. By the nuclear power plant operating units on the basis of the design of emissions, according to the site Features and operating experience feedback similar power station, according to the "ALARA" principle and the "waste minimization" of the proposed radioactive liquid State effluent total annual emissions and concentrations of application value, and to determine the approval.

Emissions management target release management target it refers to the internal control values for effluent emissions management was operating unit settings.

4 General requirements

4.1

nuclear power plant operating organization should take effective measures to ensure that the radioactive liquid effluent discharge system design and operation of nuclear power plants and radioactive Management of liquid effluent emissions to meet the relevant requirements of GB 18871, and follow the "ALARA" and "waste minimization" principle the implementation of the radioactive liquid effluent total annual emission control and emission concentration control.

4.2

Nuclear power plant radioactive liquid effluent discharges to the environment should be used through emissions, total emissions of radioactivity shall comply GB 6249 concerning Total annual emissions of radioactive liquid effluent limits regulations. Meanwhile, the coastal site, outfall system at the inter 3H, 14C alia Limit total emissions of radionuclides concentration is 1 000 Bq/L; for riparian, shore or shore reservoir site, outfall system at the inter 3H, 14C the total emission limit concentration alia radionuclides is 100 Bq/L, and the total discharge at 1 km downstream of the receiving water bodies beta radioactivity shall

not exceed 1 Bq/L, 3H concentration should not exceed 100 Bq/L.

4.3

nuclear power plant by the dilution capacity of the receiving water body should meet the cooling water or cooling tower blowdown and radioactive liquid effluents discharged to the environment. Seek, and nuclear power plant as a major indicator of the selected ratio.

4.4

In the design phase of nuclear power plants, nuclear power plant design unit should be based on the provisions of 4.1, 4.2 and 4.3 of the proposed nuclear power plant radioactive liquid effluent. Total annual emissions are included in the design of 3H and 14C each including radionuclides, and to determine the approval. For the different sources of nuclear power plants discharge radioactive liquid effluents, nuclear power plant design unit should be based on their displacement, contained in the type and activity concentration of radioactive nuclides are proposed facilities. EC radioactive liquid effluent discharge port in addition to the design discharge concentration 3H, 14C and other radionuclides, and to determine the approval.

4.5

before the first loading of nuclear power plant operating units should be designed on the basis of emissions, according to the site transport and environmental characteristics similar nuclear power plants. Line experience feedback, emissions of radioactive liquid effluent management to optimize power plant proposed radioactive liquid effluent total annual emissions and Application concentration value, after approval as a radioactive liquid effluent plant total annual emissions and concentrations of control values. For multi-unit site, should be presented in a uniform liquid radioactive effluent total annual emissions of application value.

4.6

During operation, the nuclear power plant operating organization should be combined with changes in operating experience feedback and site conditions, the radioactive liquid effluent Emissions management further optimization analysis, every five years for a nuclear power plant radioactive liquid effluent emissions values apply once review or repair Order. When site conditions change significantly, it should be within six months of the nuclear power plant radioactive liquid effluent emissions values apply for review or repair Order.

4.7

nuclear power plant operating organization shall control the radioactive liquid effluent quarter total annual emissions of radioactive liquid nuclear power plant within three consecutive months. Total effluent discharge shall not exceed the annual total value of emission control 1/2 of the total amount of radioactive liquid effluents discharged within a month should not exceed years 1/5 of the total amount of emissions control values.