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

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Replacing GB 50013-2006

**Standard for design of outdoor water supply engineering
(English Translation)**

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1 General

1.0.1

This standard is formulated in order to standardize the design of outdoor water supply projects, ensure the quality of engineering design, meet the requirements of water quantity, water quality, and water pressure, and achieve safety, reliability, advanced technology, reasonable economy, and convenient management.

1.0.2

This standard is applicable to the design of permanent water supply projects for new construction, expansion and reconstruction of towns and industrial areas.

1.0.3

The water supply project design should be based on the approved urban overall planning and water supply professional planning. The selection of water sources, the location of plants and stations, and the determination of water transmission and distribution pipelines shall meet the requirements of relevant special plans.

1.0.4

The design of water supply projects should comprehensively consider water resource conservation, water ecological environment protection and sustainable use of water resources, correctly handle the relationship between various water uses, and improve water use efficiency.

1.0.5

The design of water supply projects should implement the principles of land conservation and rational utilization of land resources.

1.0.6

The water supply engineering design should follow the principles of long-term planning, combination of short-term and long-term, and focus on the short-term. The short-term design period should be 5 to 10 years, and the long-term design period should be 10 to 20 years.

1.0.7

The structural design service life of the main structure of the water supply engineering structure and the main underground water transmission and distribution pipe shall comply with the relevant provisions of the current national standard "Technical Specifications for Urban Water Supply and Drainage" GB 50788. The design service life of main equipment, and other pipelines should be determined by technical and economical comparison according to materials, product update cycle and convenience of replacement.

1.0.8

Water supply engineering design should actively adopt effective new technologies, new processes, new materials and new equipment on the basis of constantly summarizing production practice experience and scientific research.

1.0.9

Under the premise of ensuring the safety of water supply, the water supply engineering design should reasonably reduce the project cost and operation cost, reduce environmental impact and facilitate operation optimization and management.

1.0.10

The design of water supply engineering shall not only comply with the provisions of this standard, but also comply with the provisions of the current relevant national standards.

2.0.1 Mixed well

A groundwater intake structure consisting of an incomplete large well and one to several tube well filters below the well bottom.

2.0.2 Inverted layer

The gradation gravel layer with particle size ranging from fine to coarse along the direction of water flow is laid at the water intake of large wells or infiltration trenches.

2.0.3 Forebay suction intank canal

A structure that connects the water inlet pipe channel and the suction pool (well) so that the incoming water flows into the suction pool (well) evenly.

2.0.4 Inflow runner

The water flow channel connecting the suction pool and the suction port of the water pump is set up to improve the water suction conditions of the large water pump.

2.0.5 Biological pretreatment biological pre-treatment

It is a water purification process that mainly uses biological action to remove ammonia nitrogen, odor, and organic micro-pollutants in raw water.

2.0.6 Flap filter shutter filter

One side of the filter grid is filled with water and the other side is drained with a flap valve. No drainage is performed during flushing, and the flap valve is used to drain water when flushing stops. Air-water backwashing filters with single or multi-layer filter materials can be installed.

2.0.7 Flap valve

The valve plate takes the long side as the rotation axis, and can be turned over in the range of 0° to 90° to form valves with different openings.

2.0.8 Ferrosoferriccoagulation sedimentation for defluorinate

Adding substances with coagulation ability or precipitation with fluoride in water to form a large amount of destabilized colloidal substances or precipitation, fluoride also coagulates or precipitates, and then removes fluoride ions from the water by filtration.

2.0.9 Activated alumina process for defluorinate

The process of removing fluoride from water by using activated alumina filter material to absorb and exchange fluoride ions.

2.0.10 Regeneration

After the ion exchanger or filter material fails, the process of restoring its original form of exchange capacity with a regenerant.

2.0.11 Adsorption capacity adsorption capacity

The ability of a filter material or ion exchanger to adsorb a certain substance or ion.

2.0.12 Pollution index fouling index

It is an index that comprehensively expresses the concentration and filtration characteristics of suspended solids and colloidal substances in the feed, and characterizes the clogging

degree of the microporous membrane by the feed.

2.0.13 Chlorine disinfection

The process of putting liquid chlorine or sodium hypochlorite, bleaching powder, and bleaching essence into water to complete oxidation and disinfection.

2.0.14 Ultraviolet (UV) reactor

The equipment for sterilizing water by irradiating ultraviolet lamps is composed of ultraviolet lamps, quartz sleeves, ballasts, ultraviolet intensity sensors and cleaning systems.

2.0.15 Tube type ultraviolet disinfection equipment (tube type disinfection equipment) closed vessel reactor Ultraviolet disinfection equipment with ultraviolet lamps arranged in closed pipelines.

2.0.16 Ozonation

A method of purifying water by utilizing the direct oxidation of ozone in water and the oxidation ability of the generated hydroxyl radicals.

2.0.17 Activated carbon adsorption tank

A treatment structure that uses a single granular activated carbon as an adsorption filler and has a biodegradable effect.

2.0.18 Granular activated carbon-sand filter

A thicker sand filter layer is added under the carbon layer of the downward flow granular activated carbon adsorption pool, which can remove turbidity and organic matter at the same time.

2.0.19 Internal pressure type hollow fiber membrane inside-out hollow fiber membrane

The water to be filtered is filtered from the inside of the membrane filament to the hollow fiber membrane outside the membrane filament under the pressure drive.

2.0.20 Outside-in hollow fiber membrane outside-in hollow fiber membrane

The water to be filtered is filtered from the outside of the membrane filament to the hollow fiber membrane inside the membrane filament under the pressure drive.