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NB

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

NB/T 10664-2021

Code for rock and soil tests of nuclear power station

核电厂工程岩土试验规程

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Foreword

This document was issued on 26 April 2021 by the National Energy Administration of the PRC and takes effect on 26 October 2021.

It is a NB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 27.120.20, Chinese classification F 10/19.

This code was prepared in response to the task set out in the Notice of the National Energy Administration on the plan for the formulation and revision of nuclear power standards (Guo Neng Ke Ji [2011] No. 48), which called for the drafting of the Code for rock and soil tests of nuclear power station.

The drafting group carried out extensive investigation and research, systematically summarised practical experience gained on nuclear power projects, referred to relevant international standards and to advanced standards from other countries, and prepared this code on the basis of a wide consultation of opinions.

The main technical content of this code covers: physical property tests of rock; mechanical property tests of rock; physical property tests of soil; mechanical property tests of soil; in-situ tests of rock mass; in-situ tests of soil mass; permeability tests of rock and soil; dynamic property tests of rock and soil; and wave velocity testing of rock and soil.

The code is placed under the administration of the National Energy Administration, while day-to-day management is entrusted to the China Electricity Council.

Responsibility for the interpretation of the specific technical content rests with the Changjiang River Scientific Research Institute of the Changjiang Water Resources Commission.

Chief editing organisations of this code: Changjiang River Scientific Research Institute of the Changjiang Water Resources Commission; China Energy Engineering Group Guangdong Electric Power Design Institute Co., Ltd.

Participating editing organisations of this code: Zhengzhou Zhonghe Geotechnical Engineering Co., Ltd.; Institute of Rock and Soil Mechanics, Chinese Academy of Sciences, Wuhan; State Nuclear Electric Power Planning Design and Research Institute Co., Ltd.

The code names its chief drafting staff and its chief reviewing staff in full, a drafting panel of

some thirty specialists drawn from the editing organisations together with a review panel of fifteen further experts.

Comments and suggestions arising during the implementation of this code are to be sent to the Standardization Management Centre of the China Electricity Council, No. 1, Baiguang Road Ertiao, Beijing, postcode 100761.

Approval and publication

The code was approved by the National Energy Administration and released under Announcement No. 3 of 2021, dated 26 April 2021, which promulgated 282 energy industry standards together with the English versions of a further 19 energy industry standards.

In the catalogue of industry standards attached to that announcement, NB/T 10664-2021 appears as serial number 60, with no superseded standard and no adopted international standard indicated.

The publishing body recorded in the announcement is China Electric Power Press; the approval date is 26 April 2021 and the implementation date is 26 October 2021.

The title page of the published volume confirms the same particulars: chief editing organisation, the China Electricity Council; approving department, the National Energy Administration; date of entry into force, 26 October 2021.

The standard carries the classification ICS 27.120.20 and the Chinese standard classification code CCS F 10/19, and is issued in the professional category P (engineering construction) of the energy industry standards series.

The volume was published in Beijing in 2021 by China Electric Power Press.

1 Scope

NB/T 10664-2021 is the Chinese code for the rock and soil testing carried out for a nuclear power station. Site investigation for a nuclear plant is a different exercise from site investigation for anything else, because of what the numbers are used for. The bearing capacity and deformation properties of the foundation determine the settlement of a structure that must not tilt; the dynamic properties of the soil column govern how the ground motion of the design earthquake is amplified on its way to the base of the reactor building; the permeability and the chemistry of the groundwater decide how radionuclides would migrate if they were ever released. Each of those feeds a safety case that a regulator will interrogate, so the tests behind them must be performed and reported in a way that can be defended decades later. This code sets how that is done. Its twelve chapters cover the whole programme of laboratory and in situ testing: the physical properties and classification of soils, compressibility and consolidation, shear strength in its several forms, permeability, dynamic tests including resonant column and cyclic triaxial work, the physical and