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NB

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

NB/T 20172-2012

**Technical rules for nuclear engineering surveying datum
network establishment**

核电工程测量基准网的建立和管理规定

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Foreword

This document was issued on 19 October 2012 by the National Energy Administration of

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

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followed by seven annexes, the last of which ends on page 61.

1 Scope

NB/T 20172-2012 sets out how the surveying datum network of a nuclear power project is established and managed. A nuclear plant is built to tolerances that make the control network a safety-relevant item: the reactor building, the turbine hall and the intake structures must be set out from a single consistent framework that does not move or drift over the ten or more years from first excavation to final commissioning, and every settlement measurement made afterwards is referred back to it. The rules define the terms and symbols, then the design of the network - its accuracy classes, the number and siting of monuments, the monument construction that keeps a point stable in the long term, and the relationship to the national and to the site coordinate and height systems. Observation follows: the satellite, total station and levelling methods permitted, the instruments and their calibration, the observation programme and the weather and time constraints on it, the reduction and adjustment of the measurements, and the accuracy assessment of the adjusted network. The rules then cover the densification of the network as construction proceeds, the setting out of structures from it, and the deformation monitoring network derived from it. Finally, and unusually for a surveying document, they set out the management of the network in service: the periodic re-observation, the checking of monument stability, the custody of the records and the handover to the operating organisation.

This standard specifies the layout principles, technical specifications, working methods, collation and submission of results, maintenance of the networks of each level, and the management of instrument use for the surveying datum networks of every level used in nuclear power engineering surveying.

This standard applies to the technical design, field work, inspection and acceptance activities involved in the establishment of surveying datum networks for nuclear power station construction projects.

The scope statement therefore covers the whole life of the datum network, from the design of the network through field observation to the checking and formal acceptance of the delivered results.

2 Normative references

The following documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document, including all amendments, applies.

GB/T 12897, Specifications for first and second order levelling.

GB/T 12898, Specifications for third and fourth order levelling.