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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

Issued on: October 19, 2012 **Implemented on: March 1, 2013**

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Foreword

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

the PRC and takes effect on 1 March 2013.

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 27.120.99, Chinese classification F63.

This standard has been drafted in accordance with the rules given in GB/T 1.1-2009.

This standard was proposed by the Technical Committee for Nuclear Power Standardization of the Energy Industry.

This standard is under the administration of the Nuclear Industry Standardization Research Institute.

This standard was drafted under the responsibility of China Nuclear Power Engineering Co., Ltd. The participating drafting organizations are Shenzhen China Nuclear Power Engineering Design Co., Ltd., China Nuclear Industry Huaxing Construction Co., Ltd., and China Construction Second Engineering Bureau Co., Ltd.

The chief drafters of this standard are: Lei Wangcheng, Yin Hongbin, Li Xin, Song Zhanrui, Wang Yafei, Liu Qirui, Cao Luxin, Sun Xiaolong, Gao Jian, Li Guanghua, Yuan Desheng and Luo Kai.

The foreword occupies page III of the printed document and carries no further notes on supersession or on relationships with international standards.

Publication data

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The cover carries no supersession note, so this edition does not replace an earlier standard.

Document extent according to the official table of contents: eleven numbered clauses

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.