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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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Guidelines for formulating the ageing management programme for mechanical equipment in nuclear power plants

核电厂机械设备老化管理大纲编制导则

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Standardization Administration of the PRC

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Foreword

This standard rule according to GB/T 1.1-2009 given draft. This standard is proposed and managed by the China Electricity Council. This standard was drafted. Suzhou Institute of Thermal Engineering Co., Ltd., the Daya Bay Nuclear Power Operations Management Co., Ltd., the Qinshan Nuclear Power Co. Secretary, Qinshan Nuclear Power Joint Venture Company Limited. Drafters of this standard. Fei Xue, Wu Zhen, Liu Peng, the new Ti Wen Lin Lei, Dai Zhonghua, Chenjun Qi, Wu Yukun, Chen Zhilin, pool Zhiyuan, Wang Jun, Kongde Ping, Xue Xincai, Tao Jun, Wei Wenbin, Zhang Xingtian, Ding Yuan. Nuclear power plant machinery and equipment aging management program Establishment Regulations

1 Scope

China's national guidelines for preparing an ageing management programme for the mechanical equipment of a nuclear power plant. It specifies the basic requirements for the content of such a programme, and it applies to the preparation and revision of ageing management programmes for mechanical equipment during the operating period of a plant, including any period of extended operation. A nuclear plant is licensed for a design life, and then it applies to run longer. Whether that application succeeds depends on being able to show that the equipment which cannot be replaced has not degraded beyond what the safety case assumes - and that the degradation which has occurred is understood, monitored and manageable. The reactor pressure vessel cannot be replaced. Nor can much of the primary piping, the containment liner, the supports and the embedded components. Everything else in the argument rests on evidence about those items collected over decades, which means the collection has to be planned from the beginning rather than assembled when the licence renewal is submitted. That is what an ageing management programme is: a document that identifies the components in scope, the ageing mechanisms that can act on each, the effects those mechanisms produce, the parameters that reveal them, the inspection and monitoring that measures those parameters, the acceptance criteria, and the corrective action when a criterion is approached. This standard sets out what such a programme must contain, following the international guidance on ageing management for nuclear power plants, so that a Chinese operator's programme is complete and reviewable rather than a collection of maintenance schedules. Issued on 29 June 2012

and in force since 1 November 2012.

This standard specifies the basic requirements for nuclear power plant machinery and equipment aging management program content. This standard applies to the period of nuclear power plant operation (including running extended period) machinery and equipment aging management program for the preparation and revision.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated edition applies to this article Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 17569 pressurized water reactor nuclear power plant grade items Aging management
IAEANS-G-2.12-2009 nuclear power plant (Ageingmanagementfornuclearpowerplants)
IAEA Safety Glossary -2007 Nuclear Safety and Radiation Protection (Terminologyusedinnuclearsafetyande radiationprotection)

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Aging ageing General procedural features of structures, systems or components with time or use gradually change. [IAEA Safety Glossary -2007]

3.2 Aging effects ageingeffects The net change in structure, system or component characteristics caused by aging. [IAEANS-G-2.12-2009]

3.3 Aging degradation ageingdegradation It can weaken the structure, system or component aging effects run capability within its acceptance criteria. [IAEA Safety Glossary -2007]

3.4 Aging management ageingmanagement; AM As the aging degradation of structures, systems or components within acceptable limits and to take the engineering, operation and maintenance activities. Project activities include the design, qualification and failure analysis. Run activities include monitoring the implementation of operational procedures and environmental measurements within specified limits and the like. Maintenance activities include preventive maintenance, corrective maintenance and replacement. [IAEA Safety Glossary -2007]