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Partie 3: Ouvrages de génie civil

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 85, Nuclear energy, nuclear technologies, and radiological protection, Subcommittee SC 6, Reactor technology.

A list of all parts in the ISO 4917 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

In accordance with IAEA Safety Standards Series No. SSR-2/1 protective measures against seismic events are required, provided earthquakes must be taken into consideration.

Earthquakes belong to the group of design basis events that requires taking preventive plant engineering measures against damage and which are relevant with respect to radiological effects on the environment.

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Design of nuclear power plants against seismic events — Part 3: Civil structures

Part 3: Civil structures

1 Scope

This document applies to civil structures of nuclear power plants with water cooled reactors in order to achieve the safety objectives given in ISO 4917-1. For other nuclear facilities the applicability of the document needs to be checked in advance, before it might be applied correspondingly.

This document specifies the requirements for civil structures that must be met for the verification of their load-bearing capacity in case of a seismic event. Additionally, requirements are specified pertaining to the verification of the serviceability of civil structures as far as necessary for maintaining their safety-related function in case of a seismic event (e.g. deformation and crack-width limitations).

This document will be applied under the presumption that the geology and tectonics of the plant site have been investigated with special emphasis on the existence of active geological faults and lasting geological ground displacements, and that the site has been deemed suitable for a nuclear installation.

To achieve these goals, this document deals with the requirements specific to the seismic design of civil structures above and beyond their conventional design. The basic requirements of these precautionary measures are dealt with in ISO 4917-1.

This document does not apply to cranes, to detachment devices for lifting equipment nor to the supporting and mounting constructions of components.

This document is independent of national standards. Recommendations, given in Annex A, Annex A, are mainly based on the KTA Design-Philosophy and European standards. Alternatively other equivalent standards or regulations can be used in case the general requirements given in this document can be met.

NOTE The term civil structures as used in this document comprise buildings and structural members made of reinforced concrete, pre-stressed concrete, steel, as well as steel composite structures and masonry. Among others, these include the containment, crane runways, platforms, fastening constructions and canals.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

<std>ISO 4917-1,—, Design of nuclear power plants against seismic events— Part 1: Principles</std>

<std>ISO 4917-4,—, Design of nuclear power plants against seismic events — Part 4: Components</std>

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