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## FDIS stage

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ISO/FDIS 4917-6

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## Foreword

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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](http://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.

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## Introduction

The requirements in this document are based on the verification concept 'Inspection earthquake level' given in ISO 4917-1.

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Up to the point where the value of the inspection level is not decisively exceeded; no earthquake-related deviations that could put specified normal operation conditions into question need to be expected in any areas designed against seismic events. Nevertheless, certain measures is performed to verify specified normal operation conditions before the inspection level is decisively exceeded; those measures are specified in this document.

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Whenever the value of the inspection level is decisively exceeded, earthquake-related deviations that could put the specified normal operation condition into question cannot anymore be ruled out in the areas designed against seismic events. Therefore, if the inspection level is decisively exceeded the nuclear power plant is shut down and the measures be performed as specified in this document.

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# Design of nuclear power plants against seismic events —

## Part 6: Post-seismic measures

### 1 Scope

The document applies to nuclear power plants with water cooled reactors.

The present document does not apply to earthquakes stronger than the design basis earthquake.

This document specifies guidance on the actions to be taken in preparation for and following an earthquake at a nuclear power plant. This document is intended to be used as a guideline for decision making regarding continued operation, shutdown and restart of the nuclear power plant after an earthquake. It can also be used to assist operating organizations in the preparation and implementation of an overall pre- and post-earthquake action programme for dealing with situations in accordance with the level of seismic ground motion experienced at the site, and the seismic design level of the plant.

### 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 4917-5, Design of nuclear power plants against seismic events — Part 5: Seismic instrumentation </std>~~

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain **terminological terminology** databases for use in standardization at the following addresses:

— IEC Electropedia: available at <https://www.electropedia.org/>

— ISO Online browsing platform: available at <https://www.iso.org/obp> <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

#### 3.1 specified normal operation

operation for which the nuclear power plant is technically intended, designed and suited

Note 1-to\_entry: The specified normal operation comprises the operating conditions and operating procedures

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a) ~~a)~~ during functioning condition of the facilities (undisturbed operational state, normal operation, "Normal Operation" according to IAEA Safety Standards Series No. SSR-2/1);~~);~~

b) ~~b)~~ during abnormal operation (disturbed operation, malfunction, "Anticipated operational occurrences" according to IAEA Safety Standards Series No. SSR-2/1);~~);~~ and

c) ~~e)~~ during maintenance procedures (inspection, maintenance, repair).

## 4 Procedure

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### 4.1 General requirements

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After occurrence of an earthquake and depending on the level of the recorded acceleration time history a concept of graded measures shall be applied. This concept is shown in ~~Figure 1.~~ ~~Figure 1.~~ The corresponding acceleration levels can be defined as plant-specific. Recommend values are indicated in this figure. Other types of intensity measures (e.g., cumulative absolute velocity (CAV) values) can also be specified additionally.

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The individual required measures can be found in ~~4.4, 4.5 and 4.6.~~ ~~4.4, 4.5 and 4.6.~~ These measures should also be addressed in the operator's manual.

NOTE Individual cases ~~may can~~ require long-term measures. These ~~may can~~ be performed even after the restart of the plant, however, they are not the subjects of the present document.

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Recommended Acceleration Level	Plant Condition	Required Measure
1,0 DBE	<b>Plant Shutdown</b>	Surveillance from control room and plant walk-down inspection Shutdown inspection Additional measures
↓ 1,0,4 DBE (or OBE)	<b>Continued Operation</b>	Surveillance from control room and plant walk-down inspection Inspection and evaluation
↓ 0,4 DBE	<b>Continued Operation</b>	Surveillance from control room and plant walk-down inspection
↓ Trigger Threshold <sup>a</sup>	<b>Operation</b>	none

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<sup>a</sup> Trigger threshold for data registration in accordance with ISO 4917-5

Figure 1 — Concept of graded measures