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Document Preparation Profile (DPP)

1. IDENTIFICATION

Document Category	**Safety Guide**
Working ID:	**DS367**
Proposed Title:	**Safety Classification of Structures, Systems and Components in Nuclear Power Plants**
Proposed Action:	**New document to provide guidance for the application of the IAEA Safety Requirements NS-R-1 Requirements and other Safety Guides**
Published Title/Date	
Safety Series No.:	
SS Committee(s):	**NUSSC**
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2. OBJECTIVE

According to the Safety Requirements for the Design of Nuclear Power Plants, all Structures, Systems and Components (SSCs) that are items important to safety shall be first identified and then classified on the basis of their function and significance with regard to safety. This classification will identify the appropriate requirements, codes and standards to be applied in design, manufacturing, construction and operation.

The purpose of this Safety Guide is to provide recommendations to meet the requirements for safety classification of SSCs, providing rationale and methodologies for this purpose.

The recommendations in the Safety Guide will be suitable for design of new plants and for safety review of existing plants.

This publication is intended for use by organizations designing, manufacturing, constructing, maintaining and operating nuclear power plants, as well as by regulatory bodies for the conduct of the regulatory review and assessment.

3. BACKGROUND

This Safety Guide will be prepared under the IAEA programme for safety standards for nuclear power plants. The IAEA Safety Guide on Safety Functions and Component Classification for BWR, PWR and PTR Plants (Safety Series No. 50-SG-D1) issued in 1979 was withdrawn in the year 2000 because of the insufficiency to comply with the new Requirements on Design. Therefore this Safety Guide will provide guidance in accordance with the current IAEA Safety Standards.

4. INTERFACES

A review of other relevant IAEA publications will be undertaken. This will include the Safety Fundamentals, Safety of Nuclear Power Plants: Design and Operation, current and ongoing revisions of other Safety Guides, INSAG reports and other publications that have addressed the issues of Safety Functions and Safety Classification of Systems, Structures and Components (SSC) within nuclear power plants. The new Safety Guide will have major interfaces with all the Safety Standards for Design and, in particular:

- Safety Requirements NS R-1, “Safety of Nuclear Power Plants: Design”
- Safety Requirements NS R-2, “Safety of Nuclear Power Plants: Operation”

- Draft Safety Requirement DS384, Safety Assessment and Verification of Nuclear facilities
- Safety Guide NS-G-1.2, Safety Assessment and Verification for Nuclear Power Plants

5. OVERVIEW

The content of this Safety Guide will follow the steps that are specified in the Requirements for the design of NPPs:

"The method for classifying the safety significance of a structure, system or component shall primarily be based on deterministic methods, complemented where appropriate by probabilistic methods and engineering judgement, with account taken of factors such as:

(1) the safety function(s) to be performed by the item;
(2) the consequences of failure to perform its function;
(3) the probability that the item will be called upon to perform a safety function;
(4) the time following a PIE at which, or the period throughout which, it will be called upon to operate.

Appropriately designed interfaces shall be provided between structures, systems and components of different classes to ensure that any failure in a system classified in a lower class will not propagate to a system classified in a higher class."

In view of the linkage between Safety Class and the Codes and Standards to be applied, Safety Guide NS-G-1.2, "Safety Assessment and Verification for Nuclear Power Plants" gives recommendations for the following:

"In general, the following classifications should be established and should be verified for adequacy and consistency:

1. Classification of systems on the basis of the importance of the affected safety function;
2. Classification for pressure components;
3. Classification of electrical, instrumentation and control systems;
4. Classification for resistance to external and internal hazards;
5. Classification for QA provisions." (now Management system)

The issues related to particular types of reactors will be presented in general terms and this Safety Guide will seek to identify those issues necessary for such classifications. The main part of the Guide will be applicable to virtually all types of nuclear power reactors and some specific recommendations and examples relating to particular reactor types will be described in an Appendix.

6. PRODUCTION: Provisional schedule for preparation of the document:

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Approval of DPP by the CSS:	2006 June
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Approval by the NUSSC for submission to the CSS; Editing	2007 3. Q
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