Document Preparation Profile (DPP)

1. IDENTIFICATION

Document Category	**:**	**Safety Guide**
Working ID	**:**	**DS 449**
Proposed Title	**:**	**Content of the Safety Analysis Report for Nuclear Power Plants**
Proposed Action	**:**	**Revision of Safety Guide GS-G-4.1**
Published Title/Date	**:**	**Format and Content of the Safety Analysis Report for Nuclear Power Plants, 2004**
Safety Series No.	**:**	**GS-G-4.1**
SS Committee(s)	**:**	**NUSSC (lead committee), WASSC, RASSC**
Technical Officer(s)	**:**	**C. Toth**

2. BACKGROUND

The Safety Analysis Report of a Nuclear Power Plant is the main licensing document for construction, operation and decommissioning that contains all relevant information to demonstrate the overall safety of the Nuclear Power Plant.

The IAEA Safety Guide GS-G-4.1, Format and Content of Safety Analysis Report for Nuclear Power Plants, was published in 2004. According to the IAEA rules the publication was reviewed by the Secretariat to decide whether it needs any update or modification following the experiences gained from its use by Member States and the recent developments in the national regulations and in the industry.

The recent IAEA reviews of Safety Analysis Reports from several Nuclear Power Plants showed that they have been prepared according to the format and content of the US Nuclear Regulatory Commission Regulatory Guide 1.70 Rev. 3 and Regulatory Guide 1.206. The exception known is the Safety Analysis Report of Mochovce 3&4 NPP for which the IAEA Safety Guide NS-G-4.1 was used.

The representatives of several Member States participating in IAEA meetings and safety review missions pointed out that use of the existing Safety Guide NS-G-4.1 is very limited and the safety guide needs to be revised to facilitate and promote its use. The 25th NUSSC meeting also addressed this issue and recommended the revision of the present GS-G-4.1.

3. OBJECTIVE AND JUSTIFICATION

The main objective of this Safety Guide is to provide guidance for preparing a Safety Analysis Report following a structure and content that allows verifying the compliance of the siting, design and operation of the Nuclear Power Plant with the IAEA Safety Standards. This Guide provides recommendations to meet the requirements established in the Safety Requirements publication GSR-Part 1 and GSR-Part 4 “Safety Assessment and Verification of Nuclear Facilities and Activities”. In addition, the related requirements of the draft revision of NS-R-1 (DS414) should be reflected.

This Safety Guide is intended for nuclear power plants and it will be prepared in a technology neutral form to extend its applicability to nuclear power plants of different type. The particular contents of the Safety Analysis Report will depend on the specific type and design of the nuclear power plant proposed.

Although intended mainly for new plants, the guidance presented here could also be useful for safety review of existing nuclear power plants when operating organizations review their existing Safety Analysis Reports to identify any areas in which improvements may be appropriate and/or to review the licensing basis. This Safety Guide covers both technical and human aspects that should be addressed adequately in a Safety Analysis Report in order to substantiate plant safety.

Revising the Safety Guide is justified by the need to reflect recent progress in development of safety documentation for new reactor designs in a user friendly and broadly acceptable way. While there is a general trend to follow the USNRC Regulatory Guide 1.206 regarding the content and level of details, there is also a need to harmonize approaches and to ensure consistency with recently developed and/or published IAEA Safety Standards on siting, design, operation, licensing process and safety assessment of nuclear power plants. The revision is seen as important and timely because of the large number of Safety Analysis Reports that will be developed for new NPPs.

4. POSITION IN THE OVERALL STRUCTURE OF THE RELEVANT SERIES AND INTERFACES WITH EXISTING AND/OR PLANNED PUBLICATIONS

The reviewed Safety Guide will have interfaces with:

- Fundamental Safety Principles, Safety Standards Series No. SF-1,
- Safety Requirements GSR-Part 1, “Governmental, Legal and Regulatory Framework for Safety”,
- Safety Requirement GSR Part 4, “Safety Assessment and Verification of Nuclear Facilities and Activities” and associated Safety Guides,
- Safety Requirements NS-R-1 (DS414), “Safety of Nuclear Power Plants: Design” and associated Safety Guides,
- Safety Requirements NS-R-2 (DS413), “Safety of Nuclear Power Plants: Operation” and associated Safety Guides,
- Safety Requirements NS-R-3, “Site evaluation for Nuclear Installations” and associated Safety Guides,
- Safety Requirements GS-R-3, “The Management System for Facilities and Activities” and associated Safety Guides,
- Safety Guide GS-G-1.4. “Documentation for Use in Regulating Nuclear Facilities”,
- Safety Guide, GS-G-1.2, “Review and Assessment of Nuclear Facilities by the Regulatory Body”,
- Draft Safety Guide DS 416, “Licensing process for Nuclear Installations”.

5. OVERVIEW

The proposed table of content below (in the Appendix) also includes lessons learned from safety documentation recently developed for new reactor designs. In addition to modification of the existing

table of content, the revised Safety Guide will be more adherent to the content of recently published Safety Standards in the following areas:

- description of different types of plant systems,
- civil and structured engineering (mechanical, electrical and I &C),
- defence in depth,
- management of safety,
- emergency preparedness,
- decommissioning,
- environmental aspects,
- accident analysis (analysis of shutdown operational regimes, beyond design basis accidents and severe accidents),
- deterministic and probabilistic safety analysis.

6. PRODUCTION: Provisional schedule for preparation of the document, outlining expected dates for:

Approval of DPP by the Steering Committee	:	2010 April
Approval of DPP by the NUSSC	:	2010 June
Approval of DPP by the CSS	:	2010 Sept
Development:		
CSs to prepare the draft	:	2010-2011
Approval on draft by the Steering Committee	:	2011 2. Q
Approval by the NUSSC for submission of the draft SG to Member States for comments	:	2011 3. Q
CS to revise draft SG taking into account the comments by Member States	:	2012 2. Q
Approval by the NUSSC for submission to the CSS	:	2012 2. Q
Editing	:	2012 3. Q
Endorsement by the CSS	:	2012 3. Q
Submission to Publications Committee	:	2012 4. Q
Target publication date	:	2013 2. Q

7. RESOURCES

Estimated resources involved by the Secretariat and the Member States

Four consultancy meetings and a Technical Meeting

APPENDIX

Proposed table of Contents for the document