

## **Document Preparation Profile (DPP)**

### **1. IDENTIFICATION**

**Document Category** Safety Guide

**Working ID:** DS 486

**Proposed Title:** Establishing the Safety Infrastructure for a Nuclear Power Programme (Rev. 1)

**Proposed Action:** Revision by amendment of a Safety Guide, SSG-16 Establishing the Safety Infrastructure for a Nuclear Power Programme

**Review Committee(s):** NUSSC, RASSC, TRANSSC, WASSC, NSGC

**Technical Officer(s):** David Graves, RAS

### **2. BACKGROUND**

The IAEA Action Plan on Nuclear Safety requested, under Action 6, the IAEA to review and strengthen its safety standards and to improve their implementation.

In response, the IAEA Safety Requirements were reviewed in a systematic manner, in the light of the findings of an analysis of the accident at the Fukushima Daiichi nuclear power plant (NPP). The intention of the review was to determine whether revisions were necessary to reflect any of the findings. The Commission on Safety Standards reviewed the work and concluded that the current Safety Requirements have no significant areas of weakness, but certain amendments were proposed to strengthen the requirements and to facilitate their implementation.

The Action Plan also addresses, under Action 8, the needs for MSs embarking on a nuclear power programme to create an appropriate nuclear infrastructure based on IAEA safety standards and relevant guidance.

IAEA Safety Guide SSG-16, “Establishing the Safety Infrastructure for a Nuclear Power Programme”, was published in December 2011 and is being extensively used by the IAEA to provide assistance to ‘embarking countries’ — those countries considering embarking and preparing to embark on a nuclear power programme.

The Safety Guide was also used for the development of a new module that has been introduced in the IAEA’s Integrated Regulatory Review Service and applied in missions to embarking countries.

In June 2013, the Safety Standards Committees approved for submission to Member States for comment the ‘revision through amendment’ of five Safety Requirements as described in DS462.

The 5 Safety Requirements proposed for revision were:

- GSR Part 1 on Governmental, Legal and Regulatory Framework for Safety
- NS-R-3 on Site Evaluation for Nuclear Installations
- SSR-2/1 on Safety of Nuclear Power Plants: Design

- SSR-2/2 on Safety of Nuclear Power Plants: Commissioning and Operation
- GSR Part 4 on Safety Assessment for Facilities and Activities

In addition, the IAEA is also revising the Safety Requirements GS-R-3, The Management System for Facilities and Activities (DS456) and GS-R-2, Preparedness and Response for a Nuclear or Radiological Emergency (DS457).

In December 2013, the IAEA received comments from Member States on the proposed revisions in DS462. The comments were analysed by the Secretariat. In March 2014, a working group of NUSSC reviewed the Secretariat's analysis and the Secretariat finalized DS462 for submission to the Safety Standards Committees in June–July 2014 and to CSS in November 2014.

### **3. JUSTIFICATION FOR THE PRODUCTION OF THE DOCUMENT**

In the analysis of the accident at Fukushima Daiichi NPP in 2011, there have been significant safety insights to be considered by countries operating NPPs and by those developing the safety infrastructure for a new nuclear power programme.

These safety insights are reflected in the revision of the IAEA Safety Requirements, the results of the IAEA Nuclear Safety Action Plan, and the IAEA Director General's Report on the Accident at the Fukushima Daiichi NPP (in preparation).

In October 2013, the IAEA organized a CM (feedback report in [annex](#)) to review SSG-16 against the revisions proposed in the Safety Requirements (DS462).

The results of the CM indicated that that a revision of SSG 16, in line with the changes in the Safety Requirements, is justified and timely and that it would provide new and valuable guidance to countries considering and preparing to embark on a nuclear power programme.

The experts also suggested that a revision of SSG-16 could be realized (by amendment) without changing the existing structure of 'actions' proposed for implementation during the three initial phases of the development of the safety infrastructure for an nuclear power programme.

Moreover, the analysis of feedback from applications of SSG-16 in IRRS missions, workshops, self-assessments and peer reviews identified the need for additional clarification for the implementation of some specific actions. The proposed revision would provide an opportunity to implement these changes.

The nature of the Safety Guide SSG-16 is very particular because it provides practical guidance for a phased application of the IAEA safety standards in the three phases of development of a nuclear power programme. Therefore, it is important to revise this Safety Guide regularly to keep it consistent with the whole set of relevant Safety Requirements.

#### **4. OBJECTIVE AND SCOPE**

The objective of the revised SSG-16 Safety Guide will be to provide revised guidance on establishing the safety infrastructure for a nuclear power programme in line with the revision of the IAEA safety requirements. The focus will be on the phased application of the revised safety requirements.

The revision will also include feedback from the utilization of the Safety Guide since its publication.

There is no intention to change the structure, the approach and the level of detail contained in SSG-16.

#### **5. PLACE IN THE OVERALL STRUCTURE OF THE RELEVANT SERIES AND INTERFACES WITH EXISTING AND/OR PLANNED PUBLICATIONS**

This Specific Safety Guide falls within the thematic areas of nuclear safety and will interface with the following IAEA Safety Standards and other publications (this is not, and cannot be, regarded as an exclusive or exhaustive list):

- SF-1 Fundamental Safety Principles (2006).
- GSR Part 1 Governmental, Legal and Regulatory Framework for Safety (2010)
- SSR-2/2 Safety of Nuclear Power Plants: Commissioning and Operation (2011)
- GSR Part 2 Leadership and Management System for Facilities and Activities (to be published before finalization of this safety guide revision)
- GSR Part 5 Predisposal Management of Radioactive Waste (2009)
- GSR Part 4 Safety Assessment for Facilities and Activities (2009)
- NS-R-3 Site Evaluation for Nuclear Installations Safety Requirements (2003)
- SSR-2/1 Safety of Nuclear Power Plants: Design, (2012)
- GSR Part 7 Preparedness and Response for a Nuclear or Radiological Emergency (to be published before finalization of this safety guide revision)
- GSR Part 3 Radiation Protection and Safety of Radiation Sources: International Basic (Interim Edition, 2011)
- NG-G-3.1 IAEA Nuclear Energy Series, Milestones in the Development of a National Infrastructure for Nuclear Power (2007)
- GSR Part 6 Decommissioning of Facilities (2014)

As applicable, it will be necessary to coordinate with the development and revision of other relevant IAEA Safety Standards.

The revision will take into consideration the changes being introduced in IAEA Nuclear Energy Series No. NG-G-3.1 (Rev. 2), Milestones in the Development of a National Infrastructure for Nuclear Power.

## 6. OVERVIEW

The basic structure of SSG-16 which describes the establishment of the safety infrastructure in terms of 20 elements associated to general and specific safety requirements will remain unchanged. The 200 actions proposed in SSG-16 for the three initial phases of a nuclear power programme will be generally maintained.

The revision will focus on reflecting the revision of the safety requirements in terms of actions to establish the safety infrastructure for a nuclear power programme. This will be done systematically throughout all sections of the Safety Guide, taking into consideration that the existing structure of SSG-16 identifies the safety requirements relevant to each action and phase.

**7. PRODUCTION SCHEDULE:** Provisional schedule for preparation of the document, outlining realistic expected dates:

STEP 1: Preparing a DPP	DONE
STEP 2: Approval of DPP by the Coordination Committee	March 2014
STEP 3: Approval of DPP by the relevant review Committees	June/July 2014
STEP 4: Approval of DPP by the CSS	November 2014
STEP 5: Preparing the draft	2014
STEP 6: Approval of draft by the Coordination Committee	IQ 2015
STEP 7: Approval by the relevant review Committees for submission to Member States for comments	IIQ 2015
STEP 8: Soliciting comments by Member States	IIIQ 2015
STEP 9: Addressing comments by Member States	IVQ 2015
STEP 10: Approval of the revised draft by the Coordination Committee	IQ 2016
STEP 11: Approval by the relevant review Committees for submission to the CSS	IIQ 2016
STEP 12: Endorsement by the CSS	IVQ 2016
STEP 13: Establishment by the Publications Committee	IVQ 2016
STEP 14: Target publication date	Mid-2017

## 8. RESOURCES

Estimated resources required: 1 P-staff (0.5 person-year); 3 CS meetings (estimated 5 external experts per meeting); Secretariat and Member States.

## ANNEX for information

### Feedback Report of the Consultants Meeting:

#### *Background*

From 21-24 October 2013, the secretariat organized in Vienna a consultants' meeting to review the safety guide SSG 16 "Establishing the Safety Infrastructure for a Nuclear Power Programme" and to determine the need and scope for its revision. Five consultants from Brazil, France, Pakistan, UAE, USA and one IAEA staff participated in the meeting.

#### *Approach for Review*

Examination of changes proposed in DS 462 with respect to their potential impact on SSG-16 scope and contents.

During this CS, the experts reviewed the changes to the requirements proposed in DS 462 and the relevant elements (sections) of SSG-16 where these requirements are referred. Next, the experts assessed the impact that the proposed changes could have on the relevant elements of SSG-16. This work was facilitated by work, previously prepared by the secretariat, associating the SSG-16 elements and phases with the requirements proposed for change in DS 462.

The experts also examined the conclusions of two reports prepared in the frame of the IAEA Action Plan on Nuclear Safety. The two reports are the results from International Experts' Meetings (IEM) on Strengthening Nuclear Regulatory Effectiveness in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant, and Preparedness and Response for a Nuclear or Radiological Emergency in the Light of the Accident at the Fukushima Daiichi Nuclear Power Plant. The intention of examining the conclusions of these two reports was to identify findings from the analysis of the Fukushima accident related to the proposed changes in the safety requirements, which would impact on establishing the safety infrastructure for nuclear power.

#### *Conclusions*

- Most of the changes in the requirements proposed in DS462 do not affect the structure and scope of SSG-16 and, in principle, no additional Actions will be needed. However, the experts noted that some elements (sections) of SSG-16 will require clarification or special emphasis to reflect the intent of the proposed changes in the requirements. In some cases, additional supporting text was proposed. The experts also noted that DS462 was still under review by Member States, and that conclusions would need to be confirmed following approval of DS462.
- Other Safety Requirements referenced in SSG-16 are being revised (e.g. GSR Part 2, GSR Part 7). The revision of these Safety Requirements should also be examined for possible impact on SSG-16.

- The examination of the conclusions of the two IEM reports also did not lead to the need for new Actions. However, to reflect some of the lessons learned from Fukushima, inclusion of additional supporting text related to the SSG 16 actions will be very beneficial to guide countries establishing the safety infrastructure for nuclear power.
- The remaining IEM reports should also be examined to identify findings relevant to the revision of SSG-16.
- Based on the above the experts concluded that a revision of SSG 16, in line with the changes in the safety requirements, is justified and timely and that it would provide new and valuable guidance to countries considering and preparing to embark on nuclear power in the aftermath of Fukushima.
- The experts also suggested that the revision of SSG 16 can be accomplished by amendment.