Revision by amendment of 8 Specific Safety Guides on Research Reactors as a set of publications – DS509

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Background

• All safety guides for research reactors need to be revised to:
  – Account for the recently published SSR-3:
    • New requirements (e.g. addressing relevant feedback from the Fukushima Accident);
    • Inclusion of subcritical assemblies;
    • Interface between nuclear safety and security.
  – feedback from the use of the document by MSs
  – operating experience feedback from the IAEA Incident reporting system for research reactors (IRSRR)
  – experience gained from INSARR missions
Background

- The approach to revising the safety guides was developed in consultation with experts from MSs (CSM), and was discussed and agreed within NSNI and NS.

- The approach was based on assessment of the new requirements in SSR-3 and a gap analysis of the scope and content of the Guides.

- The outcome was to revise the guides in three groups according to the depth of revisions needed (efforts of MSs also considered), and extent of technical interlinkages as well as experience from the revision by amendment of safety guides for NPPs:
  - Group 1: 8 guides (Operational Aspects) DS509
  - Group 2: 2 guides (Safety assessment, utilization and modification: SSG-20 and SSG-24) DS510
  - Group 3: SSG-22 (Graded Approach) DS511
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- **NS-G-4.1** through **NS-G-4.6**, **SSG-10**, **SSG-37** were published before **SSR-3** was published in 2016.
  - **NS-G-4.1**: Commissioning of Research Reactors (2006);
  - **NS-G-4.2**: Maintenance, Periodic Testing and Inspection of Research Reactors (2006);
  - **NS-G-4.3**: Core Management and Fuel Handling for Research Reactors (2008);
  - **NS-G-4.4**: Operational Limits and Conditions and Operating Procedures for Research Reactors (2008);
  - **NS-G-4.5**: The Operating Organization and the Recruitment and Qualification of Personnel for Research Reactors (2008);
  - **NS-G-4.6**: Radiation Protection and Radioactive Waste Management in the Design and Operation of Research Reactors (2008);
  - **SSG-10**: Ageing Management for Research Reactors (2010);
Justification

New requirements in SSR-3 include:
• Subcritical assemblies
• Preparation for Decommissioning
• Interfaces between safety and security

Gap Analysis (examples – detailed list included in the DPP):
• Req. 22, Design Extension Conditions;
• Req. 39, Prevention of Unauthorized Access to, or Interference with, Items Important to Safety;
• Req. 40, Prevention of Disruptive or Adverse Interactions between Systems Important to Safety;
• Req. 55, Emergency Response Facilities on the Site;
• Req. 76, Material Conditions and Housekeeping; and
• Req. 90, Interfaces between nuclear safety and nuclear security.

In addition:
– requirements related to management for safety and verification of safety, site evaluation, general design requirements, treatment of accident conditions, safety analysis and defence-in-depth were significantly modified.
– information in NS-R-4 was not carried over to SSR-3 because it was more suitable for inclusion in Guide-level publications.
• The scope of the 8 safety guides remains essentially unchanged;

• The structure of safety guides will also remain essentially unchanged.
Status of the Document

- The draft DPP was reviewed internally according to the NSNI QA procedure, and approved by the Coordination Committees in 2017

- Submitted to the RASSC/WASSC/TRANSC/NUSSC/EPReSC Committees for approval and clearance by NSGC to submit to the CSS.

- No comments received from EPReSC.
Requested Action

Approval to submit DS 509 to the CSS.
Thank you!