Nuclear Safety Standards Committee

43rd Meeting, 20 – 22 June, 2017

Agenda item 3.5

DPP for DS508 – Safety Guide on Application of Safety Principles & General Design Requirements for NPPs

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Safety Assessment Section
Nuclear Installation Safety
Outline

• Background Information
• Need for the safety guide.
  – Highlights on gap analysis for GSR Part 4
  – New topics in SSR 2/1
• Objective and proposal for the new safety guide on “Application of Safety Principles and of General Design Requirements for Design of Nuclear Power Plants”
• Summary of NUSSC Member comments
• Comment resolutions
• Topics for NUSSC discussion or feedback
Background Information

- Not all requirements of GSR part 4 are developed in the SGs.
- Some guidance provided in NS-G-1.2: Safety Assessment and verification for NPPs lost when declared superseded.
- Gap analysis performed (with input from Japan) during the revision of the requirements after the Fukushima Daiichi accident was presented to NUSSC.
- IAEA proposed the development of a new SG to cover the gap and use the opportunity to align it with the new or revised requirements in SSR 2/1, e.g. in relation to the extension of the design envelope to include DEC.
- Assessment of DiD (GRS Part 4, Req. 13) and in relation with it the demonstration of practical elimination was included as potential topics.
Need for the Safety Guide

Gap Analysis

- Not all the contents of NS-G-1.2 have been carried forward into GSR Part 4 as the basis for requirements for “NPP” safety assessment.
- Not all the requirements of GSR Part 4 are covered by the supporting safety assessment safety guides (for NPPs).
Objective of the Safety Guide

- Provide guidance for NPPs on:
  - Safety assessment and verification on requirements in GSR Part 4 related to design not covered in existing guides complemented as necessary with related topics addressed in general design requirements of SSR 2/1 (Chap. 4&5).
  - Assessment of engineering aspects of safety: codes & standards, materials, single failure criterion, equipment qualification, etc., applied as required to design provisions for NO, AOO, DBA, DEC
  - Address the implementation of safety principles requiring a holistic analysis involving multiple systems:
    - Assessment of defence in depth
    - Assessment of safety functions
    - Assessment of practical elimination
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- Questions or remarks, not requiring changes to the document indicated in brackets.
- Some comments have several parts inside
Relevant comments rejected /
Topics for discussion

Not accepted
• Need for the safety guide/ justification. SG should be generic for activities and facilities
• Need for addressing topics in a separate SG.
• Feasibility considering the range of topics. Difficulties for consensus
• Removing engineering aspects of safety
• Exhaustive list of interface documents
• Exhaustive gap analysis / list of contents
• Remarks on TECDOC 1791 not a SS, not consensus; time plan for development.

For discussion:
• Title / Use of term “principle”.
• Involvement of RASCC/WASSC/EPRES (Radiation protection removed)
Revised list of contents
New topics included
• Assessment of load and load combinations
• Considerations for multiunit plant designs

For discussion:
• Safety&Security in design (willing to include)
  – In relation to the safety security/ interface from the point of view of safety, some aspects would be addressed in SGs on design against human induced external hazards.
  – Focus here should be in verifying also that provisions for security don’t affect safety.
  – Topic could complicate the finalization of the SG. Basis for the assessment?

• Innovative design features: Includes assessment of passive systems. Important and challenging.
Requested Action

Approval by NUSSC
For submission to CSS
Thank you!