ENISS
TecDoc on application of SSR 2/1
(Version 27.05.15)

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TecDoc Status

- TecDoc of 27.05.15 (Rev. 9) improved a lot compared to version of 22.09.2014 (Rev. 7b)
- TecDoc’s normally describes potential or special solutions of MS, ideas, best practices and other to foster discussion
- TecDoc’s can not override documents of Safety Series
- TecDoc’s are not consensus documents, as they don’t pass committees
- Current Draft does not “discuss” different approaches and does not display pros and cons of different approaches
- Current Draft is prescriptive (e.g. “...provides a description of the plant states that have to be considered in the design of a new nuclear power...” page 7) and in parts written in the form of a requirement (e.g. “data transfer shall be secured and the shared signals decoupled” page 33, also page 36 “The technical measures to prevent each of these situations from occurring need to be provided and their effectiveness shall be analysed”)

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Design Basis

- any equipment has a design basis
- requirements for equipment/measure and the assessment of its ability to perform its functions are different
- clarity in terms helps in discussions and common understanding
- ENISS prefers a clear separation in terms between DBA and DEC
- Design includes prevention measures for conditions practically eliminated (current Figure 3 of draft TecDoc is misleading, as cond. prac. elim. are placed under “beyond design”)
Defence in depth – 3a/3b or 4a/4b

- There are good arguments for both assignments
- WENRA established 3a/3b for new reactors
- ENISS supports WENRA approach
- There should be a uniform approach within IAEA MS
- Different approaches in MS would lead to problems in application of reactors in different countries
- One problem would be the topic of independence of DID Levels
Use of non permanent equipment

- SSR 2/1 asks for features for DEC
- Para 5.29 requires for these features:
  (a) Shall be independent, to the extent practicable, of those used in more frequent accidents;
  (b) Shall be capable of performing in the environmental conditions pertaining to these design extension conditions, including design extension conditions in severe accidents, where appropriate;
  (c) Shall have reliability commensurate with the function that they are required to fulfil.
- Non permanent equipment for mitigation of conditions practically eliminated - coverage by SSR 2/1 unclear
Concept of practical elimination

- Concept has been used long time
- Defines the stopping point
- Changes in the past
- "practical elimination" requires a "high degree of confidence" in order to make a judgement
- Deterministic and probabilistic approach needed
- Suggested addition to definition does not lead to better understanding
List of DEC

- Normally technology dependent
- might be useful as a starting point for one technology
- Completeness of scenarios needs to be shown anyhow

- Additional remark to DEC: TecDoc gives impression, that safety margins for DEC are needed – related requirement in SSR 2/1? Page 41
External hazards

- Difference to WENRA – not included in DEC
- Not for security events
- Clear distinction between manmade and natural events
- New term “BDBEE” in TecDoc
- “BDBEE” has similarities to DEC (e.g. “acceptance criteria related to BDBEE should be compatible with the DEC criteria” page 45)
- Makes additional requirements, e.g.:
  - “includes the determination of the severity of the event and the probability at which the cliff edge effect would occur” page 44
Definitions

- TecDoc is not the place to propose definitions “for consideration during the preparation of Safety Standards for possible inclusion in safety glossary”
- Practical elimination see special slide
- Plant equipment – level below “safety feature for DEC” not justified by SSR 2/1
Appendixes

- Really needed?
- Strong technology dependence