Developments in Safety Requirements for NPP Design

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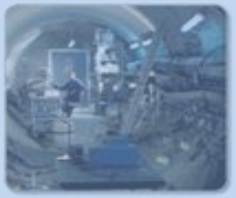
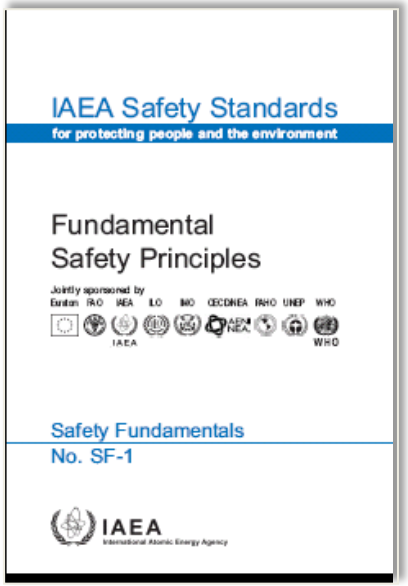
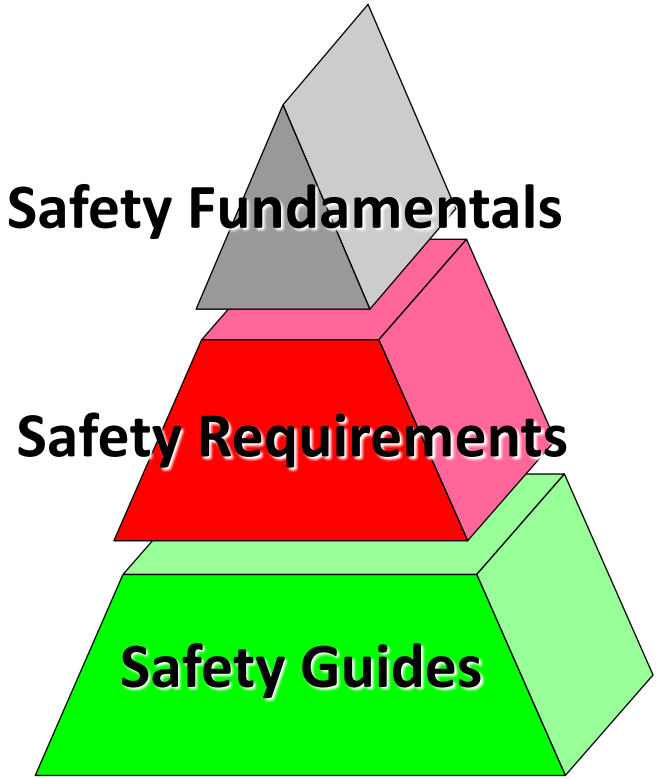


Safety Standards Hierarchy



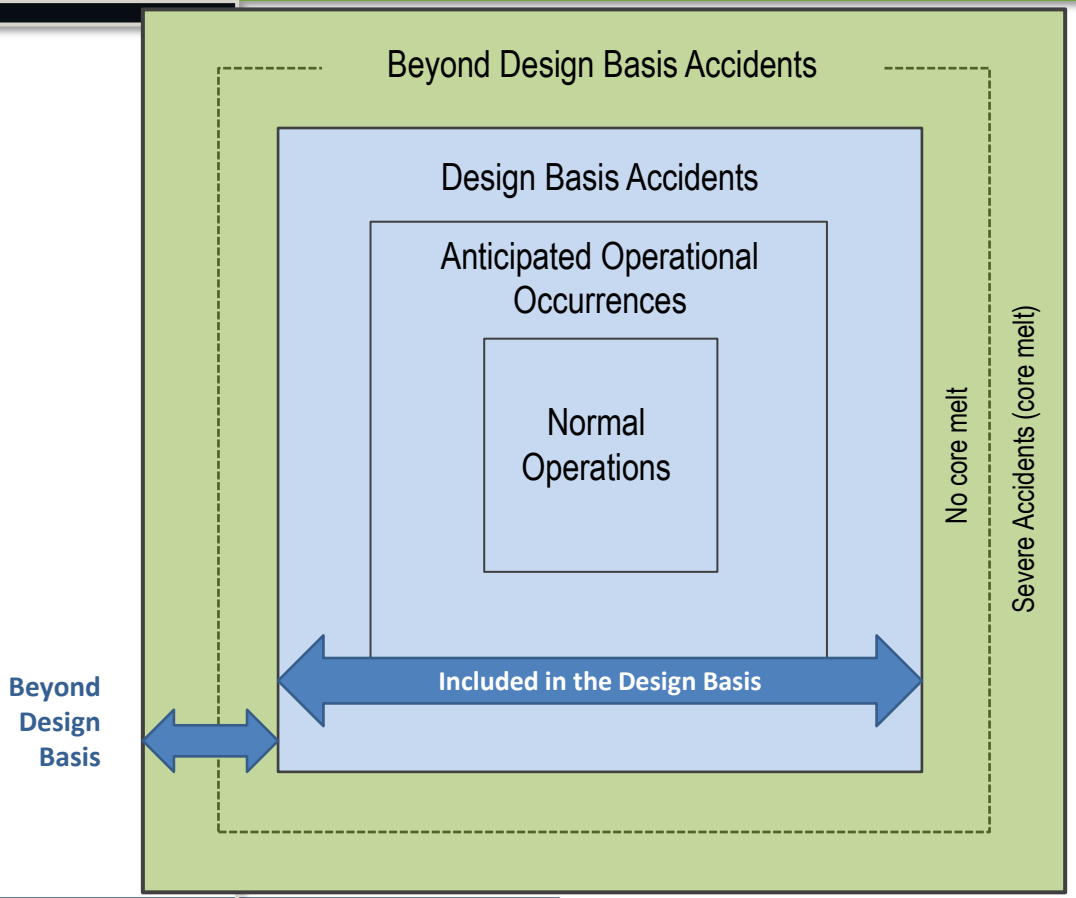
Global reference point for a high level of nuclear safety



Defence in Depth

- *Defence in Depth in Nuclear Safety*, (INSAG-10, 1996)
- *Safety of Nuclear Power Plants: Design* (IAEA Nuclear Safety Requirements, No. NS-R-1, 2000)
- *Safety of Nuclear Power Plants: Design* (IAEA Specific Safety Requirements, No. SSR-2/1, 2012)

Defence in Depth



NS-R-1, 2000

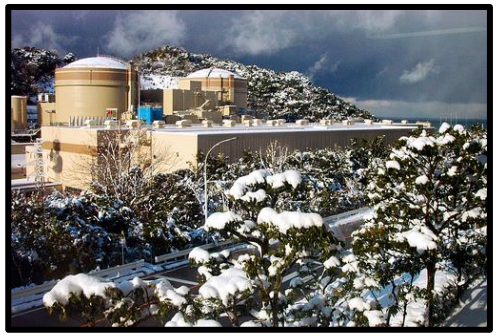
Design Extension Conditions
SSR-2/1, 2012

- Accidents that are either more severe than design basis accidents or that involve additional failures.
- Capable to withstand without unacceptable radiological consequences
- Derived on the basis of:
  - Engineering judgment
  - Deterministic assessments
  - Probabilistic assessments

Design Extension Conditions
SSR-2/1, 2012

- Identify the additional accident scenarios to be addressed in the design.
- Plan practicable provisions for the prevention of such accidents or
- Mitigation of their consequences if they do occur.

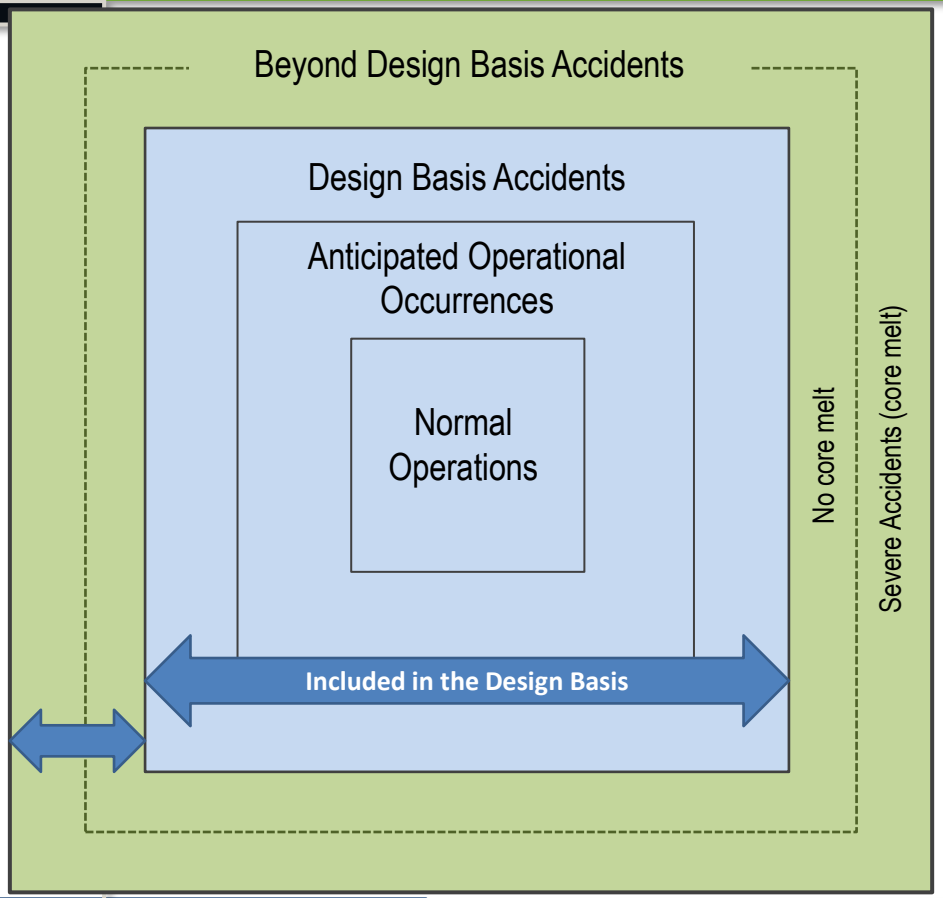
Design Extension Conditions
SSR-2/1, 2012



- Conditions that could lead to significant radioactive releases are practically eliminated
- If not practically eliminated
  - Only protective measures that are of limited scope in terms of area and time shall be necessary for protection of the public
  - Sufficient time shall be made available to implement these measures

Defence in Depth

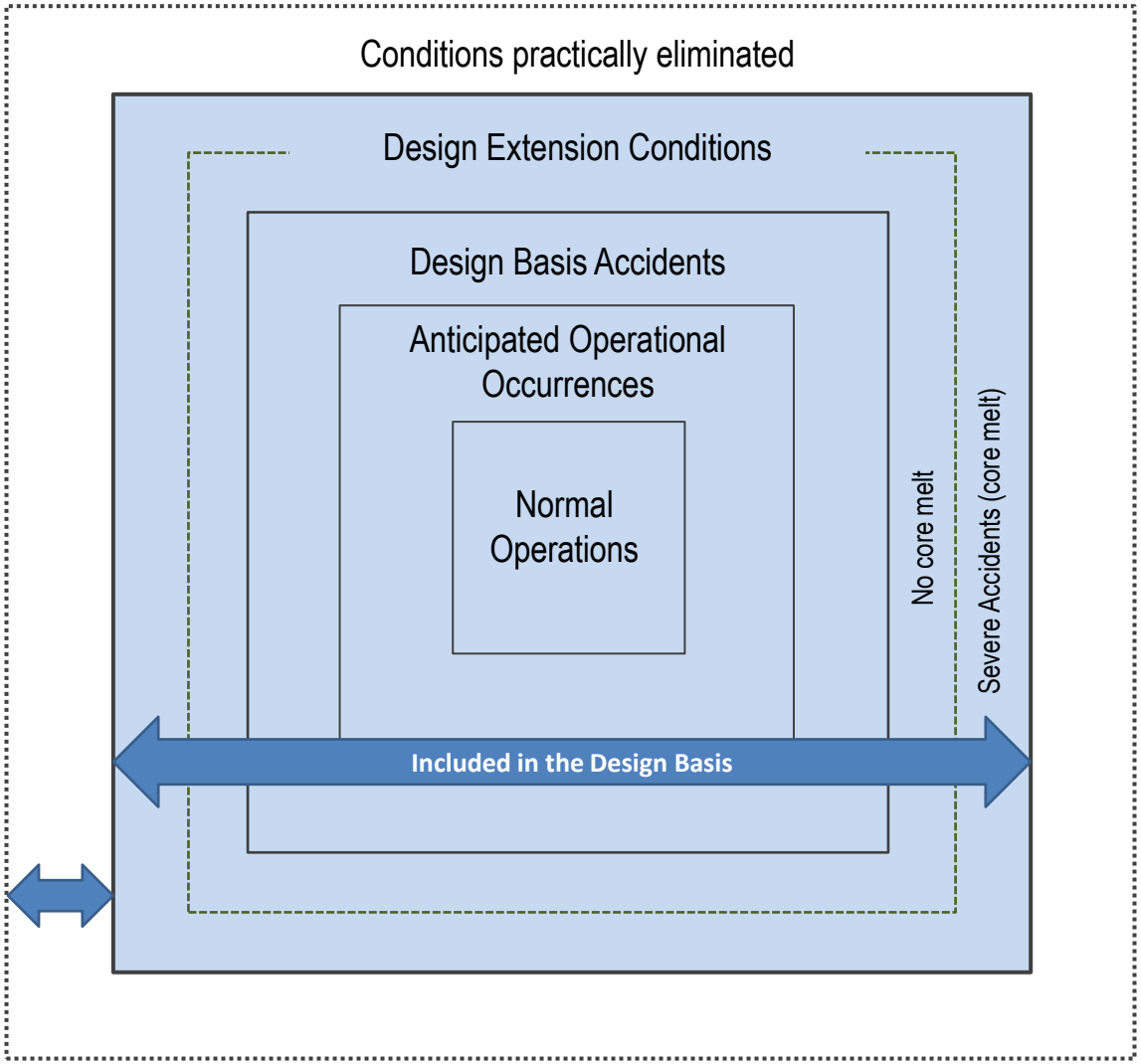
NS-R-1, 2000 versus SSR-2/1, 2012



NS-R-1, 2000

Defence in Depth

NS-R-1, 2000 versus **SSR-2/1, 2012**



SSR-2/1, 2012

Safety Features for Design Extension Conditions

- Capable of managing accident conditions in which there is a significant amount of radioactive material in the containment
- Plant shall be designed so that it can be brought into a controlled state and,
- Containment function can be maintained

Working to Protect People, Society and the Environment