

Updating of the nuclear non-mandatory guidance instruments

(M. Mertins, R. Donderer, S. Kurth)

Since 2003, GRS has been involved together with various other expert organisations in the updating of the German nuclear non-mandatory guidance instruments on behalf of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). With the state of the work that has now been achieved, these nuclear non-mandatory guidance instruments for the operation of nuclear power plants in Germany have been brought up to date with the state of the art in science and technology.

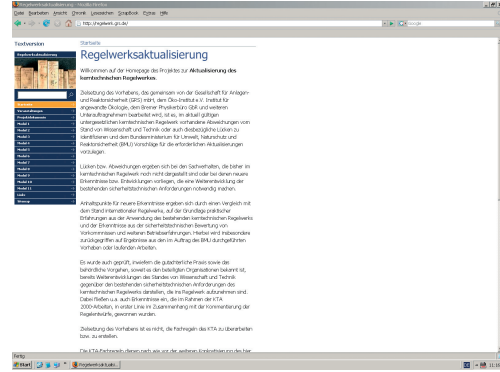
Guidance text modules

- Module 1:**
Fundamental safety requirements
- Module 2:**
Requirements for the design of the reactor core
- Module 3:**
Events to be considered for pressurised and boiling water reactors
- Module 4:**
Requirements for the design of the reactor coolant pressure boundary, the pressure-retaining walls of the external systems and the containment system
- Module 5:**
Requirements for instrumentation and control (Part 1)
Requirements for electrical energy supply, accident instrumentation (Part 2)
- Module 6:**
Requirements for safety demonstration and documentation
- Module 7:**
Requirements for accident management
- Module 8:**
Requirements for safety management
- Module 9:**
Requirements for radiation protection
- Module 10:**
Requirements for the design and safe operation of structures, systems and components
- Module 11:**
Requirements for the handling and storage of fuel elements

According to the BMU, this new body of non-mandatory guidance instruments entitled “Safety Requirements for Nuclear Power Plants” is to replace the outdated non-mandatory guidance instruments of the 1970s and 1980s.

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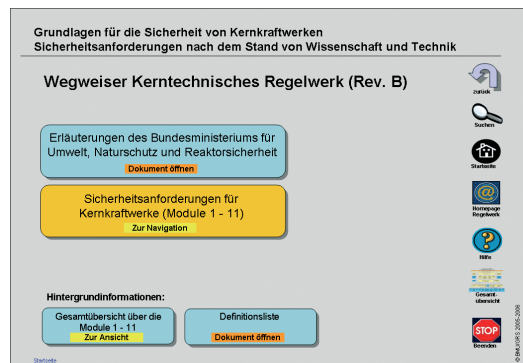
(Fig.: <http://regelwerk.grs.de>)



Evaluation Process

The “Safety Requirements for Nuclear Power Plants” were developed in a process that lasted roughly three years and was steered by the BMU. This process has involved around 60 experts from GRS as well as from several subcontractors, especially the Institute of Applied Ecology and the “Physiker Büro Bremen” consultancy. The work was based on the requirements of the existing non-mandatory guidance instruments, which were compared not only with practical operating experience and findings from safety research but also with the international state of the art in science and technology as documented in the safety standards of the IAEA and the recommendations made by WENRA.

(Fig.: The Interdependencies were visualised and the relevant guidance instruments hyperlinked in an application)



Results

These activities resulted in the definition of 11 guidance text modules on all safety-relevant issues governing the safety of nuclear power plants.



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