Reports from WASSC Members
W 4.1 Feedback on Current Regulatory Developments in Germany

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Overview

1. German Regulatory Pyramid
   Storage, Decommissioning, and Disposal

2. National Waste Management Programme
   Policy and Strategy

3. Site Selection Act
   Commission “Storage of High-Level Radioactive Waste“

4. Conclusions
German Regulatory Pyramid

- Federal legislator
- Federal Government, Bundesrat (Federal Council)
- Federal Government, Länder authorities
- Advisory bodies
- KTA
- Industry
- Basic Law
- Atomic Energy Act
- Ordinances
- General administrative provisions
- BMUB publications
  - Safety requirements, accident guidelines
  - Guidelines and recommendations
- RSK, SSK and ESK guidelines
- RSK, SSK und ESK recommendations
- KTA safety standards
- Technical specifications for components and systems
  Organisation and operating manuals

- generally binding
- binding for authorities
- binding by specification in the licence or by the supervisory measure in the individual case
Storage and Decommissioning

Recommendations of the Nuclear Waste Management Commission (follow-up the results of the WENRA benchmarking) resulted in an addition to the German regulatory framework

Storage of Radioactive Waste and Spent Fuel from June 2013:

- Guidelines for dry cask storage of spent fuel and heat-generating waste
- Guidelines for the storage of radioactive waste with negligible heat generation
Storage and Decommissioning

Storage of Radioactive Waste and Spent Fuel from March 2014
- Guidelines for the performance of periodic safety reviews and on technical ageing management for storage facilities for spent fuel and heat-generating radioactive waste

Decommissioning from March 2015
- Guidelines for the decommissioning of nuclear installations
The Guidelines for storage of spent fuel and radioactive waste are part of the German regulatory system: the federal Government and the Government of the Laender decided to use the Guidelines as a basis for their licensing and supervisory activities.

The Guideline for decommissioning is part of the federal regulations as a basis for its supervisory activity; a second Guideline regarding the administrative organization of the licensing procedure is in preparation together with the authorities of the Laender.
Storage and Decommissioning

Follow-up Fukushima Daiichi accident (March and October 2013):

**ESK stress test for nuclear fuel cycle facilities in Germany**

- Part 1: Nuclear fuel supply facilities, storage facilities for spent fuel and heat-generating radioactive waste, facilities for the treatment of spent fuel
- Part 2: Storage facilities for low- and intermediate-level radioactive waste, stationary facilities for the conditioning of low- and intermediate-level radioactive waste, disposal facilities for radioactive waste
Storage and Decommissioning

Re-assessment of the situation regarding the waste management:

- **Assessment of the Guidelines for the storage of radioactive waste with negligible heat generation**
Disposal

Regulations regarding the disposal of waste in deep geological formations

- “Safety Criteria for the Final Disposal of Radioactive Wastes in a Mine” from April 1983
- “Safety Requirements Governing the Final Disposal of Heat-Generating Radioactive Waste” from October 2010

- WENRA regulatory benchmarking in preparation!
- Commission on Storage of High-Level Radioactive Waste
Disposal

Regulatory approach **case by case** following the state of the art of science and technology:

- **Morsleben Repository**
  Closure: revision of licensing documents

- **Asse II Mine**
  Closure according to Atomic Energy Act “Lex Asse” (amendment of the Atomic Energy Act, section 57b) after the retrieval of radioactive waste
Germany will meet its reporting obligation imposed by Directive 2011/70/Euratom by submitting several documents.

The National Programme is subject to potential revision as major changes may ensue on the basis of the suggestions of the German parliament's Commission on Storage of High-Level Radioactive Waste pursuant to Section 3 of the Site Selection Act.
Site Selection Act

1. New start of the search for a repository especially for heat-generating waste.

2. The task to manage radioactive waste should be solved by the present generation to avoid any undue burden on future generations.

3. Radioactive waste generated by German nuclear facilities shall be disposed of on German territory.

4. The site selection shall be the result of a science-based, unbiased, and transparent process that involves the public right from the beginning.
   → Transparency and participation of citizens in all procedural steps are necessary and a prerequisite for a decision that is supported by a broad consensus.
5. The major decisions in the site selection process shall be taken by the German Federal Parliament and the Federal Council by federal acts.

6. There will be no pre-commitments towards certain sites, therefore the German map will be “spotless” regarding potential sites.
   → This explicitly means that the Gorleben site is part of the site selection process unless it will be excluded during the site selection process.

7. Potential sites in the three host rock types – salt, clay, and crystalline – will be evaluated.

8. The safety of a repository is to be guaranteed over a period of one million years.

9. The best suitable site regarding safety is to be selected through comparison of different sites.
Site Selection Act

• Provision of a disposal facility for radioactive waste is a federal task
• Federal Office for the Regulation of Nuclear Waste Management (BfE)
• Federal Office for Radiation Protection (BfS)
• Both are subordinated authorities of the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety.
Site Selection Act

2015/2016

- In the report the fundamentals for the Site Selection Process are laid down.

- German Federal Parliament evaluates the Site Selection Act.
- Exclusion criteria, minimum requirements, consideration criteria, and other decision criteria - based on the results of the commission - are passed as a federal act.

- Potential sites for aboveground exploration are selected by the Federal Office for Radiation Protection (BfS) and suggested to the government by the Federal Office for the Regulation of Nuclear Waste Management (BfE).
- The sites for aboveground exploration are stipulated by a federal act through the Federal Parliament and the Federal Council.

- Site specific exploration programmes for potential sites are determined by BfS and BfE.
- BfS conducts the aboveground exploration and assesses the results.
Site Selection Act

- BfS selects the sites for underground exploration and BfE suggests them to the government.
- Sites for underground exploration are stipulated by a federal act through Federal Parliament and Federal Council.

2031

- Underground exploration is conducted by the BfS.
- Site comparison is performed by the BfE.
- The best suitable site regarding safety for the period of one million years is suggested by BfE.

2023

- The site for a repository especially for heat-generating waste is stipulated by a federal act through the Federal Parliament and the Federal Council.

from approx 2050

- Stepwise licensing with BfE as the responsible authority.
- BfS is in charge of the construction of the repository.

- Repository is operated by BfS.
Commission on Storage of High-Level Radioactive Waste

May 2014 until mid of 2016: two alternating chairs; 8 scientists; 8 representatives from social groups (industry, environmental groups, unions, churches); 8 members of the Federal Parliament; 8 members of the governments of the Laender:

- Debate and clarification of principle questions concerning the management of heat-generating radioactive waste (e.g. assessment of alternatives to the disposal in deep geological formations)
- Evaluation and determination of fundamentals for the Site Selection Process (e.g. safety requirements, exclusion criteria, minimum requirements, and consideration criteria for the site selection)
- Requirements for public participation, information, and transparency
- The Site Selection Act, organisational and procedural arrangements in the scope of waste management are to be evaluated and possibly changed on the basis of the results of the commission.
Conclusions

- Regulatory framework for the storage of waste and spent fuel (dual purpose casks)
- Establishment of the Federal Office for the Regulation of Nuclear Waste Management (BfE) as a **regulator and a separate implementer** the Federal Office for Radiation Protection (BfS) in the area of waste management.
- The **transposition of the recommendations of the Commission** “Storage of High-Level Radioactive Waste” into federal law will be the next step on the way to a repository especially for heat-generating waste.
- Next (full scope) **IRRS** and **ARTEMIS** missions in 2018 and 2019 (under discussion)