

Rapporteur's Report Germany

**Fourth Review Meeting
Joint Convention on the Safety of Spent Fuel
Management and on the Safety of Radioactive
Waste Management
14-23 May 2012**

Germany – Highlights (1/3)

- Nuclear power plants (NPPs)
 - 8 of 17 NPPs shut down by 8/6/11 national policy to abandon nuclear power within 11 years
 - A total of 19 NPPs decommissioned or under decommissioning
- Research reactors: 7 operating; 9 being decommissioned
- Spent fuel (SF): four central dry storage facilities (Jülich, Ahaus, Lubmin and Gorleben) plus dry storage facilities at NPPs

Germany – Highlights (2/3)

- Shipment of SF from commercial NPPs for reprocessing is prohibited by law since 2005
- Return of radioactive waste (RW) streams from reprocessing of SF in France and UK
- Other fuel cycle facilities: one uranium enrichment and one fuel fabrication facility
- RW infrastructure includes use of national and other European management facilities; onsite and central storage facilities; and future deep geologic repository (DGR)

Germany – Highlights (3/3)

- Repository Projects:
 - *Konrad*: Construction ongoing with planned operational start date of 2019 for dedicated disposal of RW with negligible heat generation
 - *DGR for disposal of HLW*: Studies/exploration ongoing for disposal of SF and heat generating RW
 - *Morsleben and Asse II Mine*: Closure planning activities progressing at these disposal facilities
- Completed vitrifying of high activity solutions at Karlsruhe plant; 140 canisters shipped to storage

Germany – Overview (1/3)

Type of Liability	Long-term Management Policy	Funding of Liabilities	Current Practice / Facilities	Planned Facilities
Spent fuel	Interim storage in casks; subsequently conditioning and direct disposal in deep geological formations; in the case of spent fuel for research reactors transport to the country of origin or disposal	Setting aside provisions for nuclear asset retirement by installations owned by the utilities for the future costs of waste conditioning and for construction, operation and closure of a repository; refunding as adequate for the generator of the costs incurred by the Federation; financing from public funds in the case of state-owned installations (polluter-pays principle)	4 central dry storage facilities, 12 dry storage facilities at the nuclear power plant sites, 1 wet storage facility (Obrigheim)	1 wet storage facility (Obrigheim), 1 repository project in the process of exploration

Germany – Overview (2/3)

Type of Liability	Long-term Management Policy	Funding of Liabilities	Current Practice / Facilities	Planned Facilities
Nuclear Fuel Cycle Wastes	Nuclear Fuel Cycle Wastes	Interim storage at the site of origin or centrally with the aim of disposal in deep geological formations	See “Spent fuel” (polluter-pays principle)	Conditioning and interim storage (at the site of origin or centrally)
Non-Power Wastes	Interim storage at central sites with the aim of disposal in deep geological formations	Waste generators pay fees to the Land collecting facilities (polluter-pays principle); Land collecting facilities pay repository cost portion to the Federation	Conditioning and interim storage (Land collecting facilities)	1 repository licensed; in the process of refitting; commissioning approx. 2019

Germany – Overview (3/3)

Type of Liability	Long-term Management Policy	Funding of Liabilities	Current Practice / Facilities	Planned Facilities
Decommissioning Liabilities	Green field (with unrestricted release of the largest part of the radioactive residuals) or further use as industrial site	Setting aside provisions for nuclear asset retirement by installations owned by the utilities and in the case of nuclear fuel cycle installations; financing from public funds in the case of state-owned installations (polluter-pays principle)	Direct dismantling or safe enclosure	Not relevant
Disused Sealed Radioactive Sources	Interim storage at central sites with the aim of disposal in deep geological formations	Waste generators pay fees to the Land collecting facilities (polluter-pays principle); Land collecting facilities pay repository cost portion to the Federation	Conditioning and interim storage (Land collecting facilities)	1 repository licensed; in the process of refitting; commissioning approx. 2019

Germany – 3rd RM Follow-up (1/3)

- Completion and presentation of the National Waste Management Program
 - Development of the Program was stopped because of the negotiations of the requirements of Council Directive 2011/70/EURATOM regarding the National Waste Management Program. This program will be finalized in 2015.
- Updating regulations on decommissioning and storage of spent fuel and following WENRA process
 - The National Action Plan will be finalized in 2012

Germany – 3rd RM Follow-up (2/2)

- Finalization of the requirements for disposal of heat-generating radioactive waste
 - The requirements were published in September 2010
- Planned revision of the clearance levels
 - The revision of the clearance levels will be based on the results of the current negotiations in the Council of the EU regarding the EURATOM BSS

Germany – Good Practices (1/2)

- Early public involvement in
 - pre-licensing activities for siting new repositories and
 - closure plans for Asse II and Morsleben salt mine repositories
- Decay storage approach for large components from NPPs Greifswald and Rheinsberg with the aim to reduce activity and dose rate through radioactive decay for simpler management of RW or clearance
- Upfront design of standardised RW packages consistent with disposal operations at Konrad (when opened)

Germany – Good Practices (2/2)

- Clear road maps for further development of Konrad (operation) and Morsleben (closure) disposal facilities
- All four NPP utilities share liability on corporate group level for the nuclear obligations of the NPP operating entities (legal basis: controlling and profit transfer agreements)
- Comprehensive educational scheme at national (GRS Academy) and international (ENSTTI) level

Germany – Challenges (1/2)

- Issue National Waste Management Programme by mid-2015 in line with Council Directive 70/2011/EURATOM
- Establishment of a new regulatory framework for RAW management with clear separation of operational and regulatory duties in line with Council Directive 70/2011/EURATOM
- To reach public acceptance of proposed disposal facility strategies (commissioning of Gorleben or development of a new DGR HLW)

Germany – Challenges (2/2)

- Justification of RW retrieval option for Asse II mine in consideration of other than public acceptance factor
- Implementation of Site Selection Act, which is under discussion between involved stakeholders and the draft will be submitted to Parliament in summer 2012
- Early NPP shutdown creating significant issues on:
 - Decommissioning liabilities
 - Storage of low burnup SF
 - Staffing
 - Parallel conduct of several large decommissioning projects

Germany – Planned Measures to Improve Safety

- Add storage space from decommissioning activities when needed
- Implement Site Selection Act, once enacted, to continue exploration of Gorleben salt dome or to develop new DGR for HLW
- Update rules and regulations on decommissioning nuclear installations and storage of SF following WENRA process

Germany – Response to Fukushima Accident

- Declared national policy to abandon nuclear power in effectively 11 years
- Conducting comprehensive safety assessment of all SF and RW management facilities
 - comparable to the “stress test” for NPPs
 - to consider beyond design basis accidents (e.g. seismic hazards, flooding, station black out, airplane crashes)
 - developed questionnaire to submit to operations of storage facilities to support the safety assessment
- Existing SF and HLW storage facilities are robust enough to withstand extreme conditions

Germany - Conclusions

- National report fulfills salient points of the JC
- Continued progress in implementing lifecycle management strategies for SF and RW, with additional challenges to be presented by the planned early closure of all operating NPP
- Asse II mine presents ongoing challenge