

**Third Review Meeting**  
**Joint Convention on the Safety of Spent Fuel**  
**Management and on the Safety of Radioactive**  
**Waste Management**  
11-20 May 2009

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# **Country Group 5**

## **Germany**

CG countries: Italy, Republic of Korea, Iceland,  
Latvia, Switzerland, Germany, Norway, Uruguay

Nuria Prieto, ENRESA, Spain



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## **Germany – General Observations**

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- **Decommissioning activities**
  - 2002 Act on phase-out of nuclear energy
    - 19 NPPs currently in the process of decommissioning or already dismantled
    - 17 NPPs to be decommissioned over the next 15 years
  - 8 research reactors > 1 MW in various stages of decommissioning
  - 25 of 27 research reactors < 1 MW already fully removed
  - Fuel cycle facilities: 6 currently being decommissioned
- **Scope of application:**
  - No NORM declared as RW in the scope of the JC, but reference made in Annex of national report for Wismut remediation activities

## Germany – Sources of Wastes and Spent Fuel (1)

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### Sources of SF:

- From NPPs: July 2005, ban of transport for reprocessing abroad. Need for interim storage
- SF from Soviet reactors (Greifswald / Rheinsberg): central storage facility in Greifswald
- SF from wet storage facility Obrigheim (decommissioned NPP): application for dry interim storage
- SF from research reactors:
  - Allowed returning to USA. If not possible, or if this operation exceeds 2016 (Agreement with USA) interim storage at Ahaus

## Germany – Sources of Wastes and Spent Fuel (2)

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### Sources of RW:

Heat generating waste:

- From former reprocessing plant of Karlsruhe: vitrification plant starting routine operation 2009
- From NPPs: interim storage facilities (incl. Gorleben and Ahaus)

Negligible heat generation:

- From NPPs: interim storage facilities
- From research and application waste: storage
  - At operator's site (commonly research)
  - At Land collecting facilities (commonly application waste)

## Germany – Highlights (1)

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### Ongoing processes at facilities for RW disposal:

Konrad repository (disposal for waste with negligible heat generation):

- May 2007, conversion into a repository authorised by BMU
- Main operating plan approved by mining Authority in January 2008
- Aim to commission repository in 2013, operated by BfS

## Germany – Highlights (2)

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### Ongoing processes: backfilling and closure of disposal facilities

Morsleben (former LILW disposal): approval for back-filling and closure being prepared

Asse mine: (LILW disposal until 1978; then research): Closure ongoing

- Preliminary plan for closure / incomplete safety report provided 2007
- 2009, BfS becomes operator and nuclear regulation is applied

## Germany – Highlights (3)

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### National Radioactive Waste Management Plan

2001: Parliamentary commitment to BMU to present a National RWM Plan

2009: Draft Plan to be presented

- **No decision about site selection for SF/HLW repository**

2008: creation of **Nuclear Waste Management Commission**

## Germany – Highlights (4)

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- Karlsruhe vitrification plant licensed in February 2009; start operation in September 2009
- Remediation of Wismut (outside of JC scope)
- Complex organisational framework for licensing and supervision for disposal facilities

## Germany – Overview (1)

Type of Liability	Long-term management policy	Funding of Liabilities	Current practice / Facilities	Planned facilities
<b>Spent fuel</b>	Interim storage in casks; subsequently conditioning and direct disposal in deep geological formations	Annual refunding, as adequate for the originator, of the costs incurred by the Federation for the planning and construction of repositories according to fixed distribution key (polluter pays principle)	4 central dry storage facilities, 12 dry storage facilities at the NPP sites 1 wet storage facility (Obrigheim)	1 on-site interim storage facility (Obrigheim) 1 repository (site yet undecided)

## Germany – Overview (2)

Type of Liability	Long-term management policy	Funding of Liabilities	Current practice / Facilities	Planned facilities
<b>Nuclear fuel cycle wastes</b>	Interim storage at the site of origin or centrally with the aim of disposal in deep geological formations	Same as SF (generator pays)	Conditioning and interim storage, at the site of origin or centrally	1 repository licenced; refitting under preparation; commissioning approx. 2013

## Germany – Overview (3)

Type of Liability	Long-term management policy	Funding of Liabilities	Current practice / Facilities	Planned activities
Application wastes	Interim storage at central sites with the aim of disposal in deep geological formations	waste originators 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; refitting under preparation; commissioning approx. 2013

## Germany – Overview (4)

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 waste materials)	Setting aside provisions for nuclear asset retirement by installations owned by the utilities and in the case of nuclear fuel cycle installations and financing from public funds in the case of state-owned installations (polluter pays principle)	Direct dismantling or safe enclosure	not relevant

## Germany – Overview (5)

Type of Liability	Long-term management policy	Funding of Liabilities	Current practice / Facilities	Planned facilities
Disused Sealed Sources	Interim storage at central sites with the aim of disposal in deep geological formations	waste originators pay fees to the Land collecting facilities (polluter pays principle);	Interim storage (Land collecting facilities)	1 repository licensed; refitting under preparation; commissioning approx. 2013

## Germany – 2<sup>nd</sup> RM Follow-up (1)

### Challenges identified:

- Establishment of a clear separation between operator of a repository and supervisory authority
- Achieve decision on final disposal of SF and RW
- Achieve public acceptance of a repository by establishing clear and transparent site selection criteria and site selection procedure
- Harmonization of different States' approaches to managing residues
- Reconsideration of the existing funding system for decommissioning

## Germany – 2<sup>nd</sup> RM Follow-up (2)

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### Follow up:

- Completion and presentation of the National RWM Plan
- Decision on Konrad repository
- Evaluation of safety aspects of possible disposal sites
- Licenses for Morsleben and Asse mine
- Vitrification of HAWC Karlsruhe
- Clarification / justification of not including Wismut project in the JC scope

## Germany – 2<sup>nd</sup> RM Follow-up (3)

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### Planned measures to improve safety identified in 2nd RM:

- Updating of German regulations in RWM and SFM taking into account international standards and developments, and following the WENRA process

## Germany – Good Practices (1)

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- Sufficient storage capacity for SF and RW
- Creation of a Nuclear WM Commission for supporting the formulation of a RWM Policy
- Valuable investment in training and research.

Eg, Alliances for Competence in nuclear technique and radiation protection; Institute for Disposal Research

## Germany – Good Practices (2)

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- Experts and stakeholders involvement at drafting Safety Requirements for geological disposal
- Transparency of Wismut remediation activities
- Karlsruhe vitrification plant: license including plans for decommissioning

## Germany – Challenges (1)

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- Repository concept for heat-generating waste. Aim defined (2030), but no decision taken
- Siting process for heat generating waste to be defined and implemented
- Rules for financing SF and RWM to guarantee transparency

## Germany – Challenges (2)

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- Complete closure of Morsleben repository; sealing of the disposal caverns
- Asse mine: stabilization of the underground workings and ensuring radiological long term safety; perform safety assessment
- Konrad: conversion of the mine into repository

## Germany – Planned Measures to Improve Safety (1)

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- Progress in the decision for developing a repository for heat generating waste
- Completion and presentation of the National WM Plan
- Updating regulations on decommissioning and storage of SF following WENRA process
- Finalisation of the Requirements for the Disposal of Heat generating RW

## Germany – Planned Measures to Improve Safety (2)

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- Closure of repositories: details about closure of Asse mine to be defined
- Planned revision of clearance levels