Preliminary Studies for the Final Repository for Denmark's Low- and Intermediate-Level Radioactive Waste

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'Basis for decision'

- The Danish radioactive waste must be stored on Danish territory

- Existing radioactive waste, decommissioning waste and future radioactive waste produced for a number of years to come

- Lifetime of at least 300 years

- Should not depend on future generations to carry out safety procedures and monitor the waste

- Openness and dialogue with the public

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Three different studies are carried out in parallel

- An investigation of repository concepts in relation to geology and safety analyses – Danish Decommissioning (DD)

- A study on safe transportation of radioactive waste to a future repository – The National Institute of Radiation Protection (SIS)

- A geological study describing 20 areas in Danmark suitable as sites for a final repository – The Geological Survey of Denmark and Greenland (GEUS)

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The preliminary investigations at DD (1/2)

- Three different repository concepts located in four typical Danish geological settings

- A number of scenarios:
  - The potential spread of radioactive material to the environment
  - Safety analyses

- A number of safe combinations of waste conditioning, repository concept and host geology

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The preliminary investigations at DD (2/2)

- A draft plan for the repository including estimates of cost
- Considerations about reversibility and possible future expansions of the repository
- A plan for the next steps in the proces towards a final repository

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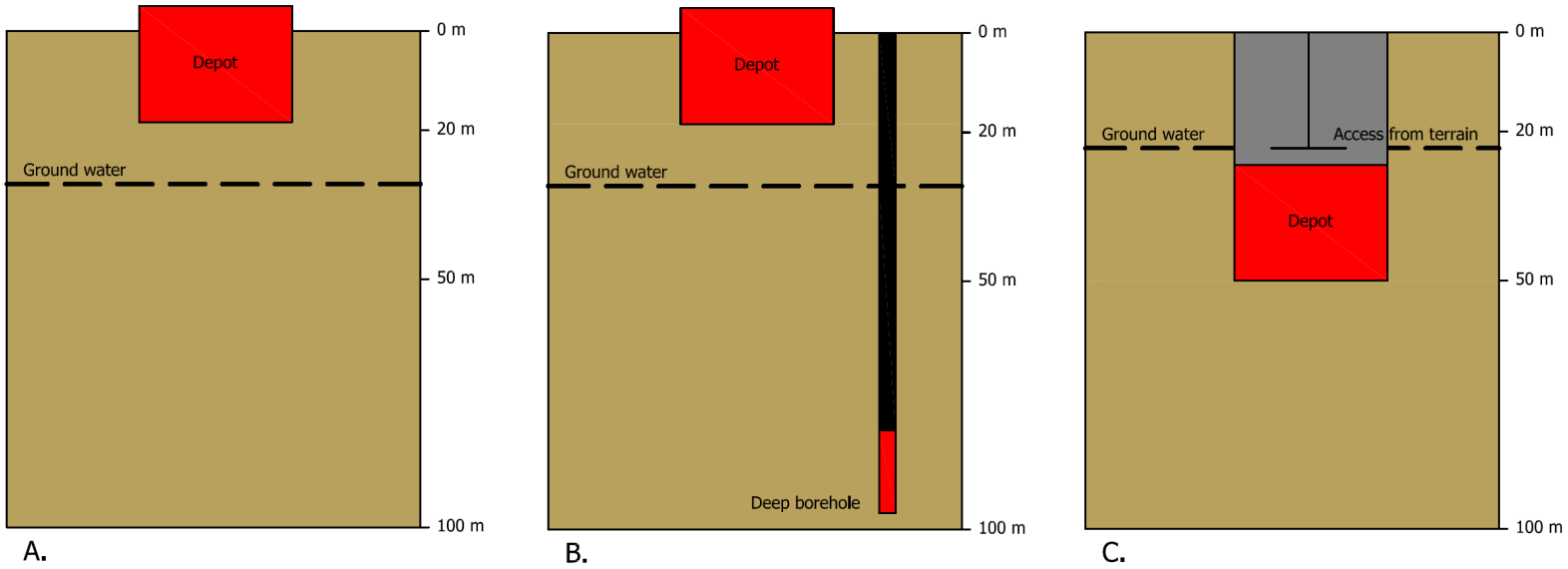

- Clay - plastic, fat
- Clay till, meltwater clay, marine, quaternary clay
- Limestone
- Crystalline rock

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Geology

- Typical Danish geological settings
- Low permeability
- Uniform and coherent layers
- The protection of present and future drinking water resources has to be considered

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Three types of waste containers

- Concrete-lined waste drums (210 l outer volume, capacity ca. 100 l)
- Steel containers (212x147x139 cm) made from 10 mm steel-plates
- 10’ ISO containers, half height, (299x244x130 cm)

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The waste

- Existing LILW from the operations at the nuclear facilities at Risø
- Existing LLW from external users (hospitals, industry and universities)
- Decommissioning waste from the nuclear facilities at the Risø area
- Special waste (mainly spent fuel used for post irradiation experiments)

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Safety analyses

- The repository design and materials
- Any natural processes that could affect the repository
- Possible reactions between the waste and the surrounding barriers
- The possibility of human intrusion

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The process after the preliminary studies

- The 20 possible areas will be narrowed down to 5-10 and based on environmental investigations then down to 2-3
- Detailed field studies and environmental impact assessments on 2-3 locations
- Public hearings and contact with local communities and NGOs
- Parliament will make the final decision for the repository

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