Radioactive Waste Management

Radioactive Waste Management Committee (RWMC)

The RWMC is assisting member countries in the area of management of radioactive waste and materials, focusing on the development of strategies for the safe, sustainable and broadly acceptable management of all types of radioactive waste, in particular long-lived waste and spent fuel.

Waste management policy and governance issues

The safety case is a key input to decision making at several steps in the repository implementation process. The RWMC prepared a brochure to provide a point of reference for those involved in the development of safety cases, and for those with responsibility for decision making in radioactive waste management. The Committee also started work to broaden the concept and to provide for an assessment basis to identify best practices in the area.

NEA member countries have chosen different approaches to establish criteria for the control of long-term safety of repositories, to decide how to make regulatory judgements against such criteria, and to express the requirements that flow from these judgements. The RWMC has undertaken to make more transparent the differences between approaches that lead to basically equivalent levels of safety. As a first step, the Committee assembled information on the categories of criteria (risk- or dose-related), and on the targets adopted for protecting the public. Regarding the handling of probability and uncertainty over time, the information recorded suggests that no country has a simple, clearly formulated approach to dealing with these issues.

Storage has long formed part of the management of many types of radioactive waste, especially spent nuclear fuel and waste from reprocessing. Starting from the conclusion that geological disposal and storage should be complementary practices, the RWMC is examining the roles that storage plays in waste management according to current or envisaged practices in member countries. The study aims to establish a common ethical and sustainability framework for these matters, representing the views of organisations with responsibilities for policy development, regulatory control and the practical management of radioactive waste.

International peer reviews

On request from the Swiss Federal Office of Energy (SFOE), the NEA organised an international peer review of a study prepared by Nagra, the Swiss waste management organisation. The study, presenting the safety aspects of a repository project in Swiss clay formations, aimed not only at demonstrating numerical compliance but also at showing the degree of understanding of the system. In its report, the international review team used a checklist of principles and good practices meant to help the evaluator verify the quality of the safety analysis. The review was presented to and well accepted by the Swiss authorities, and to an audience of representatives from Swiss and German municipalities, counties and the media.

Forum on Stakeholder Confidence

Under the title *Learning and Adapting to Societal Requirements for Radioactive Waste Management*, the Forum on Stakeholder Confidence (FSC) compiled a synthesis of its key findings during the first phase of its work on the governance of long-term radioactive waste management. It addressed basic conditions for waste management policy, social and ethical dimensions, and stakeholder involvement.

In another initiative, the Forum analysed the main features of the concept of stepwise decision making in radioactive waste disposal, i.e. a plan for repository implementation in which development is by steps or stages that are reversible, within the limits of practicability. The findings have been published in a report that highlights important aspects of the decision-making processes, and points to the benefits of a stepwise approach to move ahead in a societally acceptable manner for projects that cover very long time periods.

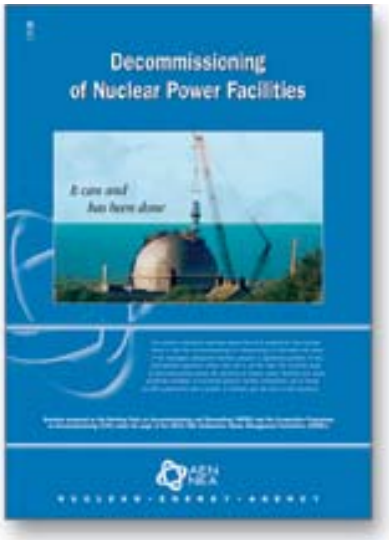
The FSC held its 4th FSC workshop in national context in the Gorleben area of Germany, following the proven scheme of including a "local" partner to facilitate discussion with local stakeholders. Local and national stakeholders, including state parliament, government, counties, municipalities, civil society organisations and "private" citizens, have been participating. The workshop methodology again demonstrated its robustness and capability to adapt to various situations and cultures and gave new insights into how history, and past trauma, will influence a revised process, and how stepwise and reversible approaches could help to overcome a blocked situation.

Repository safety and integration of science

In analysing long-term safety for geological repositories, the post-closure period is often divided into discrete time frames that are characterised by particular types of processes and related uncertainties. Work has begun to review the current status of how these issues are handled. A workshop organised on the Management of Uncertainties: The Role of Risk provided an opportunity to discuss the merits and roles of different

- A reference brochure was produced on the development of post-closure safety cases for deep geological repositories.
- Under RWMC auspices, an international expert team reviewed a safety assessment for geological disposal in Swiss clay formations.
- The integration of process issues in the design and evaluation of engineered barrier systems (EBS) was the topic of the second NEA/EC EBS workshop, held in Las Vegas, Nevada, USA.
- The management of uncertainty and the role of risk was addressed at an NEA workshop held in Stockholm, Sweden.
- The Forum on Stakeholder Confidence (FSC) compiled a synthesis of its key findings on learning and adapting to societal requirements, and held its fourth FSC workshop in national context in Germany.
- An NEA workshop sponsored by the RWMC, the CNRA, the CRPPH, the CSNI and the NDC discussed Safe, Efficient, and Cost-effective Decommissioning, in Rome, Italy.

A workshop on Safe, Efficient and Cost-effective Decommissioning was held in Rome in September 2004. Shown right are views of a leaflet largely distributed at the event and to decommissioning correspondents around the world.



strategies, methods for the management of uncertainties, and the role of risk in a safety case.

NEA work on the role of engineered barrier systems (EBS) in a safety case is being organised as a series of workshops jointly held with the EC, the second of which was held in September 2004. The workshop focused on the integration of process issues and addressed which processes are most important for the design and performance of engineered barriers, as well as how their impact could be analysed in a systematic manner.

Decommissioning

A large array of decommissioning issues was addressed at a workshop on Safe, Efficient and Cost-effective Decommissioning, held in Rome in September 2004. The workshop, which was organised by the RWMC together with the CNRA, the CRPPH, the CSNI and the NDC, in co-operation with the IAEA and the EC, and hosted by the Italian organisations SOGIN and APAT, addressed such issues as materials management, decommissioning techniques, the management of transition, costs and funding, safety and regulation. It provided valuable input for planning future work on decommissioning in the NEA committees.

Interest in and experience with different funding schemes for decommissioning have increased. The RWMC addressed this area through a specialised working party, and a task group which will prepare a document on the status of funding mechanisms in different countries.

Regarding the safety case for decommissioning, the release of sites, and the release of buildings and materials, work is ongoing to collect experience and describe the current status. A leaflet on decommissioning was also produced, showing to a wide audience that decommissioning is a technically mature undertaking that "can and has been done".

Understanding the scientific basis

To secure the scientific basis of its work, the RWMC continued to support the development and maintenance of quality-assured databases and models for use in the implementation of repositories. Work continued on the Thermochemical Database (TDB), the Features, Events and Processes Database (FEP), and a reference book on the self-healing features of clay. Final reports were drafted for a catalogue of clay characteristics and the Sorption project (see page 34). And finally, a new initiative for a reference book on natural tracers' profiles in clay (CLAYTRAC) was launched at the end of 2004.

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