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.

Highlights

- A workshop of the RWMC Regulators' Forum discussed Practical Issues and Challenges in the Regulation of Geological Disposal of Long-lived Radioactive Waste in order to better understand policies, principles and objectives underlying different national long-term safety criteria.
- The RWMC Working Party on Decommissioning and Dismantling (WPDD) organised a topical session on Emerging Issues and Trends in Regulatory Practices During Decommissioning of Nuclear Power Plants
- The role of modelling engineered barrier systems (EBS) in the framework of the safety case was the topic of the fourth NEA/EC EBS workshop, held in Tokyo, Japan.
- The Forum on Stakeholder Confidence (FSC) organised a workshop in national context in Hungary to discuss the social and economic context of waste management facility siting.

Waste management policy and governance issues

The safety case is a key input to decision making throughout the repository implementation process, which has evolved over the last decade from a numerical, performance-focused assessment to a collation of the broader range of evidence that supports and gives context to the safety argument. The Integration Group for the Safety Case (IGSC) prepared a symposium on Safety Cases for Deep Disposal: Where Do We Stand? to share practical experience on preparing a safety case and to highlight progress made since 1989, when a similar symposium was held. The symposium, scheduled for January 2007 and co-sponsored by the IAEA and the EC, will provide an international basis for the further development of safety cases and will indicate directions for future work programmes of the NEA and other international organisations in this area.

Complementing the symposium, the International Experiences in Safety Cases (INTESC) initiative aims to provide a comprehensive overview of state-of-the-art practices in existing and developing safety cases to identify key concepts, including points of consensus and divergence. Information from 15 member organisations has been collected. The report, to be published in 2007, will help clarify actual differences and similarities in safety cases.

The handling of issues related to timescales has also been revisited by the IGSC. The report finds that three broad areas in the regulation and practice of repository planning and implementation are affected by timescales issues, and it draws conclusions in light of recent international experience.

Regulatory and policy aspects of long-term safety

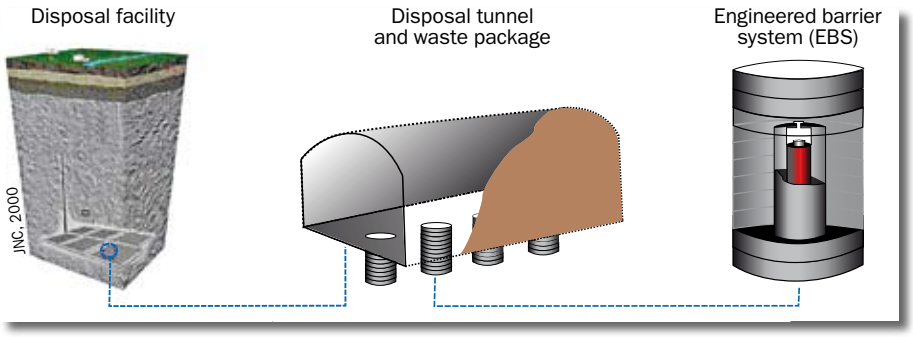
Regulatory acceptance criteria, and in particular radiological protection criteria for humans and the environment over long timescales, are a prerequisite to the realisation of any underground repository for long-lived radioactive wastes. A number of countries have established such regulatory criteria, while others are now discussing what constitutes a proper regulatory test and suitable time frame. These criteria are meant to ensure protection and safety for periods of time that are extremely long, even atypical, and in advance of regulation for other hazardous materials.

It has been recognised for many years that differences in criteria between countries may make it difficult to establish the necessary levels of acceptance of national repository proposals. Yet, a review of the long-term radiological protection criteria for disposal of long-lived waste, and an examination of their consistency internationally reveals a broad range of differing criteria and practices, and it is important that the differences be understood and explained. This work is being carried out by the Long-term Safety Criteria Group of the RWMC Regulators' Forum.

Ultimately, it is hoped that work in this area will help provide guidance and information to those programmes still developing criteria, and assist national programmes in communicating the context and meaning of regulatory standards for long-term disposal. A workshop was held in November on Practical Issues and Challenges in the Regulation of Geological Disposal of Long-lived Radioactive Waste: Towards a Common Understanding of Policies, Principles and Objectives. Participants represented regulators, implementers, consultancies, research centres and academic institutions. The workshop helped develop the groundwork for a "common understanding" and a way to carry this initiative forward.

Repository safety and integration of science

In the series of workshops on the role of engineered barrier systems (EBS), the fourth and final workshop was held in Tokyo, Japan, to address the topic of EBS design confirmation and demonstration. The workshop aimed to promote common understanding of approaches to demonstrate



EBS: the reference concept for the geological disposal system in Japan.

that EBS can be manufactured, constructed and installed satisfactorily. The workshop examined specific examples of EBS testing and demonstration programmes; feedback to modelling and safety; assessment and design optimisation; and refinement processes to help build confidence in the safety case.

Forum on Stakeholder Confidence

The Forum on Stakeholder Confidence (FSC) organised its sixth workshop in national context in Tengelic, Hungary. The workshop offered a unique opportunity to hear from, and interact with, Hungarian stakeholders – amongst whom 11 mayors – one year after Parliament gave the green light to construct a low- and intermediate-level, short-lived radioactive waste repository in the township of Bátaapáti. The workshop provided international delegates and Hungarian stakeholders with a chance to explore the social and economic context of waste management and facility siting, and the opportunity to discuss the important work of the Public Oversight and Information Associations in Hungary. The FSC also used the workshop to test the main messages of its study on building a sustainable relationship between a facility and the host community. Positive feedback was received and the FSC decided to proceed with the study's publication in 2007. The study reviews the value added that waste storage or repository projects can bring to the hosting communities, focusing on cultural and amenity aspects.

In order to better understand recent cultural and structural changes taking place within RWMC organisations, and thereby to better address stakeholder concerns, the Forum is preparing a desk study to extract lessons learnt from member institutions' experience. Another study, also close to being finalised, reviews stakeholder aspects of decommissioning nuclear facilities. The study was carried out in co-operation with the NEA Working Party on Decommissioning and Dismantling. During 2006, the Forum also addressed organisational changes and aspects of e-communications (see page 38 for further details).

Decommissioning

The Working Party on Decommissioning and Dismantling (WPDD) organised a topical session on Emerging Issues and Trends in Regulatory Practices During Decommissioning of Nuclear Power Plants to discuss the challenges of setting up a decommissioning regulatory regime, and to explore the need to strike a balance between harmonisation and flexibility.

Releasing the site of a nuclear installation from radiological control is usually one of the last steps of decommissioning and to date has been practised in a limited number of cases only. The WPDD completed a status report describing the basic considerations which must be taken into account when deciding on the release of a site. The WPDD also finalised a status report on strategy selection for decommissioning that reviews factors influencing decommissioning strategies and addresses the challenges associated with balancing these factors in the process of strategy selection. Finally, the WPDD issued a status report on decommissioning funding that offers, in a concise form, an overview of relevant considerations on decommissioning funding mechanisms with regard to ethics, implementation and uncertainties. These three reports are available on the NEA website.

Regarding the release of radioactive materials from regulatory control, adequate methods of measurement must be available to demonstrate or verify that the activity levels are lower than regulatory values. The WPDD published a study on objectives and methodology for radiological characterisation drawing on experience gathered within the NEA Co-operative Programme on Decommissioning (CPD) and collected by a CPD task group.

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 Working Group on the Characterisation, Understanding and the Performance of Argillaceous Rocks as Repository Host Formations (the "Clay Club") continued its studies on specific clay properties, notably on long-term natural tracer profiles (CLAYTRAC) and on the self-sealing capacities of clays. Finally, the NEA International Database of Features, Events and Processes (FEPs) was updated and expanded to continue providing an internationally accepted reference point to compile and cross-check for national programmes' assessments of which FEPs can affect repository evolution and safety.

Contact: Hans Riotte
Head, Radiation Protection and
Radioactive Waste Management Division
+33 (0)1 45 24 10 40
hans.riotte@oecd.org