

# Radioactive Waste Management

## Radioactive Waste Management Committee (RWMC)

*The RWMC is helping member countries find long-term, sustainable solutions for radioactive waste management and is currently focusing its efforts on improving both technical and societal confidence in geological disposal. In addition to long-lived radioactive waste, materials from decommissioning are of specific concern for the RWMC.*

### Waste management policy and governance issues

Although there is common acceptance that the development of a repository is a stepwise process, approaches and requirements need to be defined more clearly in order to progress from one stage to the next. The establishment of principles of stepwise development, including the provision of supporting documents, has become an important item of RWMC work in this area.

In this context, a policy report was drafted to clarify the concept of stepwise decision making, to address the associated challenges and to summarise experience from studies. An important element in decision making at the various stages of geological repository development is a safety case, which should address repository safety in its widest context. Work was pursued on a document describing the main elements of the safety case and the approaches available for fulfilling the related objectives. This document should help harmonise member countries' general views on how to demonstrate confidence in the long-term safety of repositories. This work was also supported by a publication released under the IPAG initiative (on integrated performance assessments of deep repositories) that reviewed the role of performance assessment, and evaluated the approaches and arguments which have been used to establish and communicate technical confidence in the safety of deep geological disposal.

The regulatory structure, which governs the implementation of national waste management programmes, is a key element for understanding the different national approaches to disposal safety. A database of national fact sheets has been created at the NEA, comprising relevant information on institutional, organisational and policy aspects. This database is a source of quality-assured information for all stakeholders in radioactive waste management. Furthermore, a study analysing commonalities and differences in regulation and practices is under way.

### International peer reviews

The RWMC has traditionally organised, on request from the member countries, peer reviews of national programmes in relation to safety assessment of deep repositories. On behalf of the Belgian Government, the NEA established an international review team to

perform a peer review of the SAFIR-2 report, produced by the Belgian Agency for Radioactive Waste and Fissile Materials (ONDRAF/NIRAS). The SAFIR-2 study describes the research, development and demonstration activities in the Belgian programme on the disposal of high-level and long-lived radioactive waste in a deep geological repository excavated within an argillaceous formation. The review is scheduled to be delivered in April 2003.



ONDRAF, Belgium

The "Ophélie" mock-up of backfill blocks being considered in Belgium for sealing underground waste disposal galleries.

The NEA also instituted a peer review team that began reviewing a report by the French waste management agency ANDRA on the clay disposal project. The "Dossier 2001 Argile" describes the scientific and technical results obtained thus far in the French programme on the disposal of radioactive waste in a repository within an argillaceous formation. This international peer review will be completed in 2003.

Finally, the Swiss Federal Office of Energy has asked the NEA to carry out an international peer review of the Swiss long-term safety analysis of the disposal of high-level waste, prepared by NAGRA, the Swiss organisation for nuclear waste. It is foreseen that this international peer review will take place during 2003/4.

### Stakeholder involvement

Public confidence is significantly affected by social considerations, such as public participation in decision-making processes, transparency of activities, developmental opportunities and social justice issues. The NEA addresses these issues through a series of workshops in national context organised by its Forum on Stakeholder Confidence (FSC). The third interactive workshop of the FSC, held in Ottawa in October, brought together a wide range of Canadian stakeholders to present their views and to discuss them with international delegates from other waste management programmes. It focused on such key

areas as the social concerns at play in radioactive waste management, how these concerns can be addressed, and the development of opportunities for local communities.

An information document on member countries' experience with stakeholder involvement is being updated and analysed under the auspices of the FSC. It will provide both the practitioner and the non-specialist with a valuable baseline of detailed, comparative information. Work has also been started on a document to identify commonalities in national approaches to stakeholder issues in waste management, and compiling and analysing lessons learnt so far. The document will be refined over the next year. For further details concerning NEA work in this area, see the section on "Nuclear Energy and Civil Society" (page 32).

### Integration of science

The RWMC further supported the development of geological disposal through new projects that address the role of engineered barrier systems (EBS), the better integration of the science of geology into repository development (AMIGO), and the handling of timescales in long-term safety assessment.

The AMIGO project on "Approaches and Methods for Integrating Geologic Information in the Safety Case" has been launched in follow-up to the GEOTRAP project. This new project is organised as a series of biannual workshops on the state of the art in collecting and integrating all types of geological information, e.g. geophysical, hydrogeological, geochemical and structural, in performance assessment models. The first workshop is planned in Switzerland in June 2003.

The Engineered Barrier System (EBS) project looks at the man-made barriers of a repository (casks, backfill, etc.) and addresses their role in the context of the entire safety case. The project was started in 2002 with a first workshop held under the joint auspices of the EC and the NEA in September. The workshop, which was hosted by Nirex in the United Kingdom, provided a status report on engineered barrier systems in various national programmes.

The issue of how to deal with phenomena and uncertainties that are characterised by widely different timescales was addressed in a workshop on the "Handling of Timescales in Assessing Post-closure Safety", held in Paris in April. The workshop identified common elements for handling timescales in future safety cases.

### Decommissioning

The RWMC collected experience available in its decommissioning groups in a report on the status, approaches and challenges in decommissioning, which is meant to inform the interested public and to support specialists and policy makers in their work. Associated with the release of this publication is a database of national fact sheets to facilitate information exchange amongst professionals, comprising information on status, objectives, funding, techniques and waste in decommissioning. These fact sheets will be complemented by a set of country leaflets addressing a broader public audience. Finally, a

- A workshop was organised as part of the Forum on Stakeholder Confidence (FSC) on Canadian experience with stakeholder involvement in developing radioactive waste management solutions.
- To support member countries in decision making on the development of their radioactive waste management programmes, international peer reviews were organised on important safety studies of the Belgian and French programmes for geological disposal.
- A report on decommissioning was published to inform policy makers and interested members of the public about the status, approaches and challenges in decommissioning.
- A workshop on engineered barrier systems addressed their role in the context of the safety case for geological disposal.
- AMIGO, a new initiative to better integrate geologic information into safety assessments of waste repositories, has been started.

roadmap is being maintained as a reference for ongoing international activities addressing decommissioning issues.

RWMC work in this area is supported by the Co-operative Programme on Decommissioning (CPD), a joint undertaking of 39 decommissioning projects in 14 countries (see page 29).

### Technical studies and databases

Various other scientific and technical issues have been pursued to define the state of the art and to provide shared instruments essential for repository development and safety assessment. The International Database on Features, Events and Processes (FEPs) for geological disposal of radioactive waste has been reviewed and the database enlarged. The RWMC "Clay Club" revised a catalogue of characteristics and a database of bibliographic references on clay media, and is examining in detail current knowledge of self-healing properties in clay and argillaceous media. The FEPCAT project evaluates features, events and processes specific to argillaceous media. In the area of sorption modelling and associated thermochemical data, the Thermochemical Database (TDB) project and the Sorption project have accomplished important steps (see page 29 for further information).



**Contact: Hans Riotte**  
 Head, Radiation Protection and  
 Radioactive Waste Management Division  
 Tel.: +33 (0)1 45 24 10 40  
 Fax: +33 (0)1 45 24 11 10  
 E-mail: hans.riotte@oecd.org