

Radioactive Waste Management

Radioactive Waste Management Committee (RWMC)

Mission

To assist Member countries in the area of radioactive waste management, particularly in developing safe management and disposal strategies for spent fuel, long-lived waste, and waste from the decommissioning of nuclear facilities.

Highlights

- The new Integration Group for the Safety Case (IGSC) started its work, focusing on developing, evaluating, and communicating the "safety case" as a basis for confidence and decision making in radioactive waste disposal.
- The Forum on Stakeholder Confidence brought together government-nominated participants and a considerable number of stakeholders to address the role of open dialogue in all aspects of radioactive waste management.
- The NEA organised an international peer review of the Swedish SR 97 report, which forms an important part of the decision basis for the Swedish spent fuel disposal programme.
- A workshop on "Gas Generation, Accumulation and Migration in Underground Repository Systems for Radioactive Waste" was held in Reims, France, in June 2000.
- Under the auspices of the RWMC, a second phase of the Sorption Project was launched to benchmark chemical thermodynamic modelling.

The "safety case" for geologic disposal

The Integration Group for the Safety Case (IGSC) began its work with two meetings in 2000. The new group, which builds on solid NEA experience in the areas of performance assessment and site evaluation and design, will work on the development, evaluation and communication of the "safety case" as a basis for confidence and decision making. New activities under consideration will include a concise description of the safety case, the handling of time scales in assessing post-closure safety, and a co-operative project on the engineered barrier system.

Forum on Stakeholder Confidence

The RWMC set up a forum to facilitate the sharing of Member country experience in addressing the societal dimension of radioactive waste management, to explore means to ensure an effective dialogue with the public, and to consider ways to strengthen confidence in decision-making processes. A first workshop set up by the forum

Manufacturing of a bentonite barrier at Mont Terri, Switzerland.



ENRESA, Spain

In line with recent experience in Member countries, RWMC activities concerning long-term waste management solutions focused on improving confidence in such solutions, both from the technical and social points of view.

addressed a variety of topics ranging from evolving participatory democracy, stakeholder identity, and trust in the international framework, to the role of open dialogue in all aspects of radioactive waste management. The meeting brought together government-nominated participants and a considerable number of stakeholders including academics, sociologists, representatives of mediation and review groups, and elected political representatives.

Performance assessment

The main goal of the RWMC in the area of integrated performance assessments (IPAs) is to harmonise views on the role of IPAs as the core constituent of repository safety evaluations. After an examination of the desirable information content and of the concerns of regulatory bodies in reviewing IPAs, a third phase of the programme is under way to evaluate presentational needs for enhancing confidence in long-term safety. Preliminary findings show that messages must be clear and unambiguous, tailored to the audience and consistent with the assessment and the safety case. Different audiences have different information needs, and confidence has to be demonstrated, not just stated. The study to be published in 2001, the IPAG-3 report, will include international experience in achieving that goal.

GEOTRAP

The proceedings of the fourth workshop of the NEA GEOTRAP Project on Radionuclide Migration in Geologic, Heterogeneous Media, hosted by the United States Department of Energy (USDOE) and held in Carlsbad, New Mexico, were prepared for publication in the beginning of 2001. While this workshop focused on confidence in models of radionuclide transport for site-specific performance assessment, the fifth and final GEOTRAP workshop, which will be hosted by SKB in Äspö, Sweden, in May 2001, will address geological evidence and theoretical bases for radionuclide-retention processes in heterogeneous media.

Clay Club

The problem of extracting solutions from argillaceous formations for geochemical and isotopic characterisations is complex. A Clay Club report on *Porewater Extraction from Argillaceous Rocks for Geochemical Characterisation* provides a synthesis of available extraction methods and assesses their respective advantages and limitations. It also identifies key processes that may influence the composition of the extracted water and describes modelling approaches that are used to determine *in situ* porewater composition.

The FEPCAT project is under way and will provide a detailed catalogue of "Features, Events and Processes" specific to the disposal of long-lived waste in argillaceous formations. Work in 2000 focused on the answers to a questionnaire distributed amongst Clay Club members. The catalogue report will be reviewed in the second part of 2001.

At the 10th Clay Club meeting in spring 2000, the delegates showed considerable interest in the multidisciplinary issue of the self-healing of argillaceous rocks under repository conditions. It will be taken up at a special session of the 11th Clay Club meeting in 2001.

Gas generation and migration

In underground repositories for radioactive waste, significant quantities of gases may be generated as a result of several processes. Following the publication of an EC/NEA status report on Gas Migration and Two-phase Flow in 1999, a workshop on "Gas Generation, Accumulation and Migration in Underground Repository Systems for Radioactive Waste: Safety-relevant Issues" was held in Reims, France on 26-28 June 2000. Hosted by ANDRA, the two-part workshop attracted experts from 13 countries. The first part of the workshop, based on invited presentations, set the context for considering the way forward in this field. The second part, based on working group discussions, focused on specific issues in gas generation and migration, and on making relevant recommendations for future work. The workshop proceedings, prepared for publication early in 2001, will include a synopsis which draws out the main conclusions of the workshop.

Peer review

Following a request from the Swedish Nuclear Power Inspectorate (SKI), the NEA organised an international review of the recently completed Swedish SR 97 report, a safety assessment of the concept developed for the disposal of Sweden's spent nuclear fuel.

The review, which was carried out in the first half of 2000, found that the Swedish disposal concept has the essential elements of a sound approach to the disposal of spent nuclear fuel in a geologic repository. It provides "defence in depth" through a set of passive barriers with multiple safety functions. The concept is based on well-established science and a firm technological foundation.

The NEA's international review of the SR 97 report forms an important part of the decision basis for the future direction of the Swedish spent fuel management programme.

Co-operation and information exchange projects

Under the auspices of the RWMC, scientific co-operation projects study the potential contribution of sorption phenomena to the safety of geologic repositories. Complementary to the Thermochemical Database (TDB) Project, which focuses on data, a newly launched second phase of the Sorption Project investigates the capabilities of chemical thermodynamic modelling approaches through a benchmarking exercise. The RWMC also administers the information exchange project on decommissioning, which is a cornerstone of the NEA's activities in this cross-cutting area. These projects are described in the "Joint Projects" section on page 29.

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