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NUCLEAR ENERGY AGENCY  
RADIOACTIVE WASTE MANAGEMENT COMMITTEE

## Expert Group on Preservation of Records, Knowledge and Memory across Generations

**Foundations and Guiding Principles for the Preservation of Records, Knowledge and Memory across Generations, namely for the Post-closure Phase of Geological Repositories**

**A Collective Statement of the NEA Radioactive Waste Management Committee.**

*This document supports item 10b of the provisional agenda of the 47th session of the RWMC, to be held 26-27 March 2014*

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**FOUNDATIONS AND GUIDING PRINCIPLES FOR THE PRESERVATION OF RECORDS,  
KNOWLEDGE AND MEMORY ACROSS GENERATIONS: A FOCUS ON THE POST-  
CLOSURE PHASE OF GEOLOGICAL REPOSITORIES – A COLLECTIVE STATEMENT OF  
THE NEA RADIOACTIVE WASTE MANAGEMENT COMMITTEE.**

Disposal of long-lived radioactive waste in engineered facilities or repositories, located in deep geological formations, is being researched, developed and implemented as the ultimate solution to protect humans and the environment for long periods of time without the need of maintenance or human intervention. There is, however, no intention to forsake repositories for geological disposal of radioactive waste, before or after closure. As with many long-term projects, concerted attention is required to minimise risk of Records, Knowledge & Memory (RK&M) loss. The international community of radioactive waste professionals is leading advanced work in this important area, dedicating efforts towards the preservation of RK&M across generations. At the end of the first phase of work of its RK&M project, the OECD NEA Radioactive Waste Management Committee (RWMC) observes that the context has changed greatly since the 1980s, when RK&M preservation was thought to serve the sole function of deterring intrusion into a repository. Today, the goal is to preserve information to be used by future generations while maintaining technical and societal oversight of the repository for as long as practicable. Foundations and guiding principles to serve that goal are presented in this Collective Statement of the NEA Radioactive Waste Management Committee.

**Foundations for RK&M Preservation**

It is accepted today that:

- There is no intention to forsake repositories for geological disposal of radioactive waste, before or after closure. The RWMC accepts and adopts the ICRP-122 position on the relevance of maintaining oversight over geological disposal of radioactive waste for as long as practicable.
  - Oversight is a general term for "watchful care" and refers to society "keeping an eye" on the technical system and the actual implementation of plans and decisions.
  - Oversight includes regulatory supervision, institutional control, preservation of records, and societal memory keeping of the presence of the facility.
- The repository, once its closure is authorised, should be safe by itself. Safety – meaning no significant threats to human health or the environment – should be independent of any forms of oversight.
- Once the current institutions – implementers, regulators, and others – have fulfilled their legal mandates, repository oversight will be continued by other institutions and stakeholders.

- Any strategy for the preservation of RK&M should take into account the possibility of major discontinuities in future society.

Based on the points above, the following principles are offered to help guide long-term strategies for RK&M preservation across generations.

### **Guiding Principles on RK&M preservation**

- Keeping RK&M of a radioactive waste repository after closure is meant to perpetuate the ability of future society to take informed decisions regarding the repository and its contents and to prevent inadvertent human intrusion.
- Enabling future society to make informed decisions is part of responsible, ethically-sound, sustainable radioactive waste management, and is in line with a prudent approach regarding safety.
- Preparing for future RK&M preservation is best addressed while waste management plans are being designed and operationalised, and funding is available to direct to this important component of long-term planning.
  - The long period of the operational phase of the repository creates an opportunity for reflection and for the development of workable RK&M strategies.
- During the operational phase the institutional stakeholders must prepare for the post-closure phase, when their own roles will be reduced and other stakeholders with new responsibilities, especially in the area of RK&M preservation, will enter the scene. During this operational phase, the institutional stakeholders can facilitate the preparation and implementation of:
  - Archives
  - Administrative restrictions on land use
  - Regular reporting by governments under one or more international mechanisms and agreements.
- A systemic approach should be formulated whereby the various components of the RK&M system complement each other, provide for redundancy of message communication, and maximise the survivability of a recognisable and comprehensible message.
  - There is no single best means of preservation over all time scales. All available communication channels should be explored.
  - Records will be used by others than the original providers, and attention should be paid to the needs of future users in terms of facilitating readability and intelligibility, providing, in particular, relevant information on the context in which the records were created.

- The various components of the RK&M system should apply robust, simple and understandable techniques and support materials, and should not rely on technological provisions alone.
- RK&M preservation approaches should include provisions for knowledge reconstruction and for providing information to future generations with and without requiring the involvement of intermediate generations.
- Regulatory guidance and supervision should be developed to support the systemic approach to RK&M preservation.
- Synergies should be sought with societal institutions and international bodies and agreements that are likely to survive beyond the closure of the repository and can thus contribute to RK&M preservation.
  - Mechanisms outside radioactive waste management constitute an additional resource for waste management organizations and governments.
- A concerted approach at the international level will contribute to the further development of national strategies.

Planning for future RK&M preservation is best addressed while waste management plans are being designed and operationalised and funding is available. The long period of the operational phase of the repository creates an opportunity for reflection and for the development of workable RK&M strategies. A systemic approach should be formulated whereby the various components of the RK&M system complement each other, provide for redundancy of message communication, and maximise the survivability of a recognisable and comprehensible message. In this approach, synergies should be sought with societal institutions and international bodies and agreements that are likely to survive beyond the closure of the repository and can thus contribute to RK&M preservation. Mechanisms outside radioactive waste management constitute an additional resource for waste management organisations and governments. A concerted approach at the international level will contribute to the further development of national strategies.