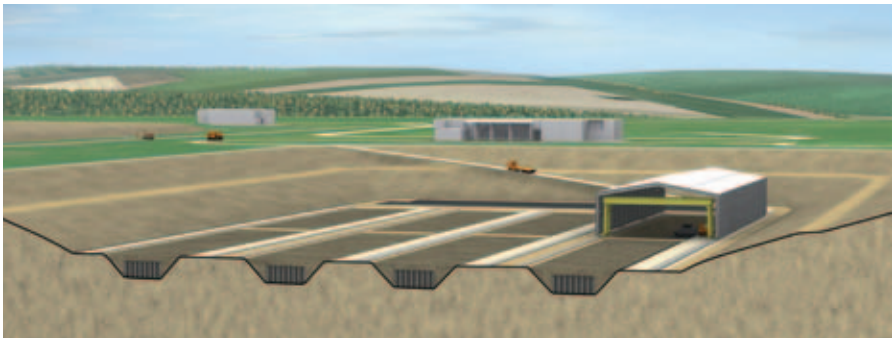
ADS · Near Surface
Andra Disposal Solutions

Radium-bearing waste

The management of radioactive waste resulting from the production of rare earths or of groundwaters loaded with mineral salts



In France, Andra is currently studying a disposal concept for long-lived radioactive waste, such as radium-bearing residues

Radium-bearing waste is radioactive and, as its name implies, contains radium. It may result from ore mining, the treatment of groundwaters originating from deep geological formations, oil production or industrial activities.

Often important in volume, radium-bearing waste is generally of low-level or intermediate-level activity, which means that a light protection mechanism is sufficient against irradiation risks. However this type of waste is radon gas producing and this must also be taken into account. The storage solution, which usually involves waste preconditioning, must ensure the safety and radiation protection of the staff working on the site, of neighbouring populations and of the environment.

However, storage must be considered only as a temporary measure. In fact, radium-bearing residues are long-lived and require specific long-term management solutions in order to prevent any future migration or transfer (notably by air) of radioactive substances and to protect the populations and the environment against contamination risks.

Methodology

› 1· Good knowledge of the waste and of its future production

The first step consists in drawing an inventory of existing waste on the different sites, starting with a preliminary characterisation, in order to design and implement immediate radiation-protection systems, if need be.

The assessment of future waste production will complete the preliminary inventory by including in it a prospective dimension.

› 2· Short-term protection and development of concepts for long-term management

The second step implies the short-term protection against the risks induced by radium-bearing waste through their preconditioning before collection, transport and potential temporary storage (centralised or not).

On the basis of the characteristics of the residues, preliminary disposal concepts are developed for their long-term management. For economic and safety reasons,

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it is worth mentioning that the design of preconditioning must be consistent with the long-term safety objectives and the disposal concepts.

A safety assessment concludes that phase and ensures the conformity of the overall solution with the regulatory framework, notably with regard to environmental impacts.

> 3• Conduct of the project

Once the licence is granted, the third step consists in establishing on the basis of the selected concepts and of their modus operandi, technical requirements and specifications in order to select the service providers or the building contractors.

Andra Disposal Solutions

Andra is responsible for the management of all radioactive waste produced in France.In that capacity, the Agency has more than 15 years' experience in drawing inventories (notably prospective) and characterising radioactive waste resulting not only from the nuclearpower sector, but also from the chemical industry and other industrial applications of radioactivity.

Andra has developed concepts and methodologies for a large variety of waste categories, notably those with "very-low-level" and "low-level long-lived" residues, such as radium-bearing waste from industrial activities, as well as for substantial volumes.


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1• Radium-bearing waste resulting from the treatment of rare earths for industrial applications.

2• 3• Industrial activities, such as the production of zirconium (2) generate radium-bearing residues, stored here in the same industrial facility where they are produced (3).

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Mastering radioactive waste

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