

## Field: RADIATION PROTECTION AND WASTE MANAGEMENT

### Topic: MANAGEMENT OF SPENT FUEL AND RADIOACTIVE WASTE

<b>Course type:</b>	TRAINING	<b>Objective</b>
<b>Date:</b>	29 January – 02 February 2024	This course provides participants with a complete overview of the management of spent fuel and radioactive waste. Theoretical knowledge will be provided that will include information about the classification systems, the inventories and the management plans, as well as the surface and geological disposal. The regulatory policies, approaches and guides will be introduced thus improving the trainees' competences not only in the technical disciplines but in the regulatory and organizational aspects, enabling them to perform regulatory functions concerning spent fuel and radioactive waste management more effectively.
<b>Duration:</b>	One week	
<b>Location:</b>	Paris, France	
<b>Working language of the course:</b>	English	

#### Outline of course content

The main objective of this training is to provide trainees with the basics of radioactive waste management, which will later enable them to be able to manage the various aspects. The legal and regulatory bases will be presented, as well as the founding principles, including waste classification, inventories and their management plan. The principles of safety and their demonstration for disposal facilities will be explained. We will deduce the often-used notions of Waste Acceptance Criteria, as well as the techniques to respect them. The management of residues in nuclear power plants will also be the subject of information. Finally, a complete overview of disposal facilities around the world will be offered. The financing aspects of radioactive waste management, the societal questions it raises, the political and ethical responses will conclude this training cycle, so that the different aspects will have been reviewed.

A concrete illustration will be offered during a detailed technical visit to the disposal facilities at the Center de l'Aube, managed by ANDRA.

- A general reminder of the concept of waste will be offered, with an illustration of the different types of radioactive waste produced by nuclear power activities as well as by many other domestic activities (industry, medicine, research).
- The legal and regulatory bases will be specified, in particular with the European Directive on the management of radioactive waste and spent fuel. After an introduction to the classification criteria for radioactive waste, an exercise will be offered to the participants in order to describe a classification system.
- The essential input data for good management relates to knowledge of the waste and first of all of its inventory. After an illustration of the inventories, an introduction to the management plan, as required by the 2011 Directive, will be presented.
- One of the little-known aspects of radioactive waste management concerns the basics and principles of the safety demonstration. These will be the subject of a dedicated presentation, from which the definitions of Waste Acceptance criteria will naturally flow.
- This will naturally result in the principles of waste preparation and their control for acceptance into disposal, especially focused on non-electronuclear radioactive waste.
- One day will be devoted to the management of radioactive waste from nuclear power plants, on the one hand in very advanced countries, and on the other for new entrants. A point on disposal into boreholes will also be offered.
- Finally, one day will be dedicated to the presentation of various disposal facilities, both on the surface and in the geological environment. On this occasion, the questions of financing, ethics, social and political will be introduced, with a focus on the necessary communication.

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### **Technical schedule and delivery methods**

The course consists of one module taking a working week (i.e. 5 workdays).

- **Lectures:** the course is organized in 12 theoretical and practical lectures
- **Exchanges with presenters:** A time for discussion is planned each day between the presenters and the trainees, in order to ensure that the principles proposed are properly understood.
- **Technical visit:** A full day will also be devoted to a detailed visit to 2 world-leading disposal facilities, one for LIL-SL waste and one for VLLW.

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### **Target audience**

This course is intended for experts and professionals of Nuclear Regulatory Authorities (NRAs) and Technical Support Organizations (TSOs) with responsibilities related to the management of spent fuel and radioactive waste.

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**Target number of participants:** 15 – 25

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### **Prerequisites and requirements for participants**

Participants should have an adequate level of knowledge in English (at least an 'Independent user' level defined by the [CEFR](#)). A university degree with nuclear or environmental specialization OR at least 2 years of professional experience in functions relevant to the content of the course is also a prerequisite.

Relevancy of the course topic in the work and institutionally justified interest in participating will be considered as well as the need and opportunity for filling competence gaps. Efforts are made to ensure gender equality.

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### **Terms of participation**

The project is implemented under the European Union (EU) external assistance programme called the European Instrument for International Nuclear Safety Cooperation (INSC) and aims to support the National Nuclear Regulatory Authorities (NRAs) and their Technical Support Organisations (TSOs) in non-EU countries in strengthening their capabilities with regard to their regulatory tasks and responsibilities in the field of nuclear safety and radiation protection.

Employees of the NRAs or their TSOs in the Beneficiary Countries are eligible for financially supported participation in the T&T courses. Beneficiary Countries of the project are published on the website <https://training.ek-cer.hu/>.

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### **Costs**

Travel costs and subsistence allowances (including the international and national travel tickets, per diems, shuttle services, insurance and visa costs) for participants will be covered by the project.

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### **Application**

Application via the website <https://training.ek-cer.hu/>, according to the process and deadlines indicated there.

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### **Examination**

Technical and linguistic tests will be written as part of the application and selection process to assess the underlying knowledge and preparedness of applicants. Knowledge and development of selected participants will be assessed through technical tests throughout the course.

Participants attending the full course will be issued with attendance certificates. Successful participants will receive certificates confirming their knowledge achieved and skills acquired.

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