IAEA
International Atomic Energy Agency
Atoms for Peace and Development

First Capacity Building Workshop on the Use of Safety Case and Safety Assessment against External Events in the Siting of Disposal Facilities

IAEA Headquarters
Vienna, Austria
and virtual participation via Microsoft Teams

22 - 25 March 2027

Ref. No.: EVT2603982

Information Sheet

Introduction

This event is the first capacity-building workshop under an EC-funded extra budgetary project designed to provide Member States with practical guidance and methodologies for the demonstration of safety of radioactive waste disposal facilities, with a specific focus on the siting phase (the Project). The project responds to the expressed need of Member States for enhanced guidance on the implementation of IAEA Safety Standards, particularly on the technical and organizational aspects important for the safety evaluation of disposal sites.

The project addresses the selection and assessment of scenarios caused by external events, including natural and human-induced events, that may affect the safety of radioactive waste disposal facilities. These include earthquakes, fault displacement, flooding, meteorological hazards, climate change and other relevant external events. The project also recognizes the importance of site-specific geological, hydrological and long-term environmental considerations in the overall demonstration of safety.

The workshop builds on the technical work and outcomes of the project, including the IAEA Safety Report and TECDOC. The workshop will translate the resulting technical guidance and practices into practical knowledge and skills for Member States, including embarking countries.

Particular attention will be given to the demonstration of safety for near-surface, geological and borehole disposal facilities during the siting phase. The workshop will introduce methods for developing the safety case and subsequent safety assessment, including approaches for identifying and characterizing external events, defining relevant scenarios and parameters, and applying probabilistic approaches. Practical examples, case studies and exercises will be used to support participants in applying these approaches to site-specific conditions.

Objectives

The purpose of the event is to provide Member States, including embarking countries, with practical knowledge and methodologies for demonstrating the safety of near-surface, geological and borehole disposal facilities, with a specific focus on the siting phase. The workshop will introduce approaches for developing the safety case and subsequent safety assessment, including methods for identifying and assessing external events and defining relevant scenarios and parameters. New and emerging methods, including probabilistic approaches, will also be introduced and discussed through practical examples and case studies.

- To introduce the role, structure and key elements of the safety case and safety assessment in the siting of radioactive waste disposal facilities.
- To explain approaches for demonstrating safety during the siting phase, including the relationship between site characterization, external event hazard assessment, scenario development and the safety case and safety assessment.
- To introduce methods for identifying and characterizing external events and for selecting relevant hazard and scenario parameters, including earthquakes, fault displacement, flooding, meteorological hazards, climate change and human-induced events.
- To introduce probabilistic approaches and discuss their application to external event hazard assessment, scenario development and safety assessment for disposal facilities.
- To provide practical training through examples, case studies and exercises addressing near-surface, geological and borehole disposal facilities and different site-specific conditions.

Target Audience

This event is intended to engage representatives from IAEA Member States involved in the planning, siting, safety assessment and regulatory oversight of radioactive waste disposal facilities. Participation is particularly encouraged from Member States that are developing or establishing radioactive waste disposal programmes, including embarking countries, as well as Member States with established disposal facilities and relevant regulatory or technical expertise. This event is intended to attract:

- Experts involved in the characterization and assessment of external events and natural and human-induced hazards.
- Experts involved in the development or review of safety cases and safety assessments for radioactive waste disposal facilities.
- Representatives of regulatory bodies, technical support organizations, operators and radioactive waste management organizations.
- Programme managers, researchers and academic specialists involved in radioactive waste management, disposal facility siting and safety assessment.

Working Language(s)

English.

Expected Outputs

The outputs from this event are expected to be two complementary sets of results.

The first output will be a training summary report documenting the key topics covered, approaches presented and major discussions during the events. The report will summarize the role and key elements of the safety case and safety assessment in the siting of radioactive waste disposal facilities against external events, as well as approaches for demonstrating safety during the siting phase. It will also capture the methods introduced for identifying and characterizing external event hazards, developing relevant scenarios and selecting hazard and scenario parameters, including earthquakes, fault displacement, flooding, meteorological hazards, climate change and human-induced events.

The second, but fundamentally equally important, output will be a set of training materials developed and used during the events. The materials will provide practical methodologies and examples for applying safety case and safety assessment approaches to near-surface, geological and borehole disposal facilities. They will include practical examples, case studies and exercises addressing external event hazard assessment, scenario development and probabilistic approaches, taking into account different site-specific conditions. The training materials will be made available to support further capacity building and the application of the approaches introduced during the events.

Topics

The workshop will be organized around the following five main training areas, based on the contents of the Safety Report and TECDOC:

1. External Hazard Identification, Characterization and Screening

- Identification of natural and human-induced external hazards
- Site characteristics and FEP identification
- Hazard characterization and selection of relevant parameters
- Hazard screening, data quality and completeness

2. External Hazard Assessment Methods and Scenario Development

- Hazard-specific methods for seismic, geological, hydrological, meteorological and human-induced hazards
- Definition of hazard parameters and event scenarios
- Hazard interactions, combinations and cascading effects
- Development of assessment cases for safety demonstration

3. Safety Case, Safety Assessment and Siting Context

- Safety case and supporting safety assessment
- Siting process, assessment context and graded approach
- Facility types, lifecycle phases and safety functions
- Regulatory criteria and decision context

4. Uncertainty, Long-Term Evolution and Re-evaluation

- Uncertainty and sensitivity considerations
- Long assessment time frames and non-stationary hazards
- Climate change and long-term environmental evolution
- Robustness, low-probability events and re-evaluation of hazards

5. Application to Disposal Facilities: Case Studies and Practical Exercises

- Application to near-surface, geological and borehole disposal facilities
- Member State case studies and practical examples
- Exercises on hazard screening, parameter selection and scenario development
- Lessons learned and challenges for embarking countries

Participation and Registration

All persons wishing to participate in the event have to be designated by an IAEA Member State or should be members of organizations that have been invited to attend.

In order to be designated by an IAEA Member State or invited organization, participants are requested to submit their application via the InTouch+ platform (https://intouchplus.iaea.org) to the competent national authority (Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority) or organization for onward transmission to the IAEA by **29 January 2027**, following the registration procedure in InTouch+:

1. Access the InTouch+ platform (https://intouchplus.iaea.org):
   - Persons with an existing NUCLEUS account can sign in to the platform with their username and password;
   - Persons without an existing NUCLEUS account can register here.

2. Once signed in, prospective participants can use the InTouch+ platform to:
   - Complete or update their personal details under 'Complete Profile' and upload the relevant supporting documents;
   - Search for the relevant event under the 'My Eligible Events' tab;
   - Select the Member State or invited organization they want to represent from the drop-down menu entitled 'Designating Authority' (if an invited organization is not listed, please contact InTouchPlus.Contact-Point@iaea.org);

- If applicable, indicate whether a paper is being submitted and complete the relevant information;
- If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);
- Based on the data input, the InTouch+ platform will automatically generate the Participation Form (Form A) and/or the Grant Application Form (Form C);
- Submit their application.

Once submitted through the InTouch+ platform, the application, together with the auto-generated form(s), will be transmitted automatically to the required authority for approval. If approved, the application, together with the applicable form(s), will automatically be sent to the IAEA through the online platform.

NOTE: The application for financial support should be made, together with the submission of the application, by **29 January 2027**.

For additional information on how to apply for an event, please refer to the InTouch+ Help page. Any other issues or queries related to InTouch+ can be sent to InTouchPlus.Contact-Point@iaea.org.

Selected participants will be informed in due course on the procedures to be followed with regard to administrative and financial matters.

Participants are hereby informed that the personal data they submit will be processed in line with the Agency's Personal Data and Privacy Policy and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. The IAEA may also use the contact details of Applicants to inform them of the IAEA's scientific and technical publications, or the latest employment opportunities and current open vacancies at the IAEA. These secondary purposes are consistent with the IAEA's mandate. Further information can be found in the Data Processing Notice concerning the IAEA InTouch+ platform.

Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the event. The IAEA has, however, limited funds at its disposal to help meet the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the event.

The application for financial support should be made, together with the submission of the application, by **29 January 2027**.

Venue

The event will be held at the Vienna International Centre (VIC) where the IAEA's Headquarters are located. Participants must make their own travel and accommodation arrangements.

General information on the VIC and other practical details, such as a list of hotels offering a reduced rate for IAEA participants, are listed on the following IAEA web page:

https://www.iaea.org/events.

Participants are advised to arrive at Checkpoint 1/Gate 1 of the VIC one hour before the start of the event on the first day in order to allow for timely registration. Participants will need to present an official

photo identification document in order to be admitted to the VIC premises.

Visas

Participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria at least four weeks before they travel to Austria. Since Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

Organization

Scientific Secretary

Mr Hyun Woo Lee
Division of Nuclear Installation Safety
Department of Nuclear Safety and Security
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA
Tel.: +43 1 2600 26399
Fax: +43 1 26007
Email: H.W.Lee@iaea.org

Administrative Secretary

Ms Nadia Nammari
Division of Nuclear Installation Safety
Department of Nuclear Safety and Security
International Atomic Energy Agency
Vienna International Centre
PO Box 100
1400 VIENNA
AUSTRIA
Tel.: +43 1 2600 22518
Fax: +43 1 26007
Email: N.Nammari@iaea.org

Subsequent correspondence on scientific matters should be sent to the Scientific Secretary/Secretaries and correspondence on other matters related to the event to the Administrative Secretary.