



IAEA

International Atomic Energy Agency
Atoms for Peace and Development

Technical Meeting on Practical Experiences and Considerations in the Planning, Construction and Initial Operation of the First Underground Facilities at Potential Deep Geological Repository Sites

**Hosted by the
Kingdom of Sweden**

**through the
Swedish Nuclear Fuel and Waste Management Company/Svensk
Kärnbränslehantering AB (SKB)**

11–15 September 2023

Ref. No.: EVT2207070

Information Sheet

Introduction

Member States operating a nuclear power plant, or planning to establish future use of nuclear power, must implement solutions for the resulting back end management for intermediate level waste, high level waste and spent nuclear fuel, when classified as radioactive waste. Deep geological repositories (DGRs) offer an internationally accepted solution for the safe and sustainable management of such wastes (see IAEA General Safety Guide GSG-1).

Inherent to all DGR programmes is the construction of underground accesses either via shaft or ramp in order to confirm the suitability of a site by means of complementary underground investigations before the start of the DGR construction, or – if this is deemed not to be necessary - to access the subsurface for the start of construction of a DGR with supporting scientific confirmation programmes. The topic of this technical meeting will primarily focus on the construction of new underground facilities and the

investigations planned through these facilities at a previously undisturbed site as the first major subsurface construction step in a DGR programme.

The move from surface-based to underground investigations is a key step in a DGR programme and one that requires a significant level of confidence in a site's suitability to justify the costs and environmental disturbances involved. It is therefore likely that the site has already been identified as the preferred location for a DGR.

Therefore, research conducted underground at the potential DGR site should be seen as confirmatory, rather than explorative. Resolving as many uncertainties as possible prior to going underground at the potential DGR site will be a significant factor in reducing the risks of going underground at an unsuitable site.

Interactions between safety assessments, data collection and site descriptive modelling as well as refining the repository design, layout and engineered barrier systems (EBS) adapted to the local conditions and the integration of the results into optimization strategies for initial underground construction, will be an integral part of any specific planning activity.

It is very important to recognize this in all planning activities for underground investigations and in particular to ensure that the requirements for the investigations do not conflict with the overriding requirements of the potential future DGR. This requires ensuring that the features of the site (for example, the safety functions provided by the geological environment and the support of the local community) that led to its selection to host a DGR are not jeopardized.

Underground excavation's will disturb the host rock and its overlying rocks. Nevertheless, the excavation process should be carried out with sufficient care (regarding both excavation method and the exact locations of the excavations) to preserve as far as possible the integrity and containment safety functions of the geological environment. In this respect it is important to reflect that underground excavation for a DGR is more than just a mining activity because it is what is left around the excavation, rather than what is removed from it, that is of value. Therefore, careful planning before going underground is essential.

The aim of this event will be to gather experiences gained in this area by Member States from initial planning activities through to implementation. Experiences from Member State programmes at all stages of DGR development is relevant to the event, but particularly from those programmes with relevant construction experience or planning their first underground excavation at a potential DGR site.

The output from this event will provide input to a new IAEA publication "Practical Consideration and Experiences in Going Underground at a Potential Deep Geological Repository Site" which is intended to support Member States in this important planning stage of a DGR programme. A draft has been compiled by a team of international experts with a diversity of relevant experience in radioactive waste management and DGR programmes.

Objectives

The purpose of the event is to collect practical experiences and considerations in the planning, construction and initial operation of the first underground facilities at, or associated with, potential geological repositories, either at a specified site or in support of site investigative programmes.

This experience may be related to lessons learned and experiences gained from previous siting endeavours, practical experiences from construction and operation of programme relevant underground research facilities (URFs), first access at a potential DGR site, or in related planning activities.

The information gained in this event will support the development of a new IAEA publication. This publication will gather and summarize relevant experiences to serve MSs as a reference in planning their initial excavations at a DGR site. The publication will include selected case studies and draw upon current and previous national experiences in “going underground” at potential DGR sites. The event will serve to ensure a broad consideration is given to Member State experiences.

The event will discuss and consider issues and constraints to be taken into account when a programme decision is made to go underground for the first time. It will also serve to and raise awareness of potential risks that could affect programme success.

The goal of the event and the publication it supports is to help Member States in developing a sound understanding of the goals that can be achieved from going underground and hence define a clear set of requirements and practical considerations for planning and implementing their DGR construction programmes.

Target Audience

Specifically the event is expected to be useful to radioactive waste management facility planners and implementers, responsible government ministries, regulators and their technical support organizations in Member States in event their radioactive waste disposal obligations, with a focus on those Member State with established high level radioactive waste (HLW) disposal programmes and specifically those MSs planning on the excavation of shafts or ramps to access the subsurface in previously undisturbed rock formations for the purpose of investigating a sites suitability to host a DGR, or potentially an Underground Research Facility constructed in support of a DGR programme. MSs in early repository programme planning stages will also benefit as the technical event will assist them in designing and prioritizing DGR programme efforts.

Working Language(s)

The working language of the event will be English. Interpretation will not be provided. All communications, reviews and discussion papers must be submitted in English.

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, participants are requested to send the **Participation Form (Form A)** to their competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission

to the IAEA or National Atomic Energy Authority) for onward transmission to the IAEA by **14 July 2023**. Participants who are members of an organization invited to attend are requested to send the **Participation Form (Form A)** through their organization to the IAEA by the above deadline.

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.

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 using the **Grant Application Form (Form C)**, which has to be stamped, signed and submitted by the competent national authority to the IAEA together with the **Participation Form (Form A)** by **14 July 2023**.

Venue

The event will be hosted by the Swedish Nuclear Fuel and Waste Management Company/Svensk Kärnbränslehantering AB (SKB), Aspö, Oskarshamn, Kingdom of Sweden.

Visas

Participants who require a visa to enter the Kingdom of Sweden should submit the necessary application as soon as possible to the nearest diplomatic or consular representative of the Kingdom of Sweden.

IAEA Contacts

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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.

Participation Form

Technical Meeting on Practical Experiences and Considerations in the Planning, Construction and Initial Operation of the First Underground Facilities at Potential Deep Geological Repository Sites

Oskarshamn, Sweden and virtual participation via Cisco Webex

11–15 September 2023

To be completed by the participant and sent to the competent national authority (e.g. Ministry of Foreign Affairs, Permanent Mission to the IAEA, or National Atomic Energy Authority) of his/her country for subsequent transmission to the International Atomic Energy Agency (IAEA) either by email to: Official.Mail@iaea.org or by fax to: +43 1 26007 (no hard copies needed). Please also send a copy by email to the Scientific Secretary (G.Nieder-Westermann@iaea.org) and to the Administrative Secretary S.T.Elamkunnam@iaea.org.

Deadline for receipt by IAEA through official channels: 14 July 2023

Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms
Institution:		
Full address:		
Tel. (Fax):		
Email:		
Nationality:	Representing following Member State/non-Member State/entity or invited organization:	
If/as applicable: Do you intend to submit a paper? Yes <input type="checkbox"/> No <input type="checkbox"/> Would you prefer to present your paper as a poster? Yes <input type="checkbox"/> No <input type="checkbox"/> Title: I plan to attend virtually: Yes <input type="checkbox"/> No <input type="checkbox"/>		

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.

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Family name(s): (same as in passport)	First name(s): (same as in passport)	Mr/Ms:
Mailing address:	Tel.:	
	Fax:	
	Email:	
Date of birth (yy/mm/dd):	Nationality:	
I plan to attend virtually:	Yes <input type="checkbox"/> No <input type="checkbox"/>	

1. Education (post-secondary):

Name and place of institution	Field of study	Diploma or Degree	Years attended from to	

2. Recent employment record (starting with your present post):

Name and place of employer/ organization	Title of your position	Type of work	Years worked from to	

3. Description of work performed over the last three years:

4. Institute's/Member State's programme in field of event:

Date: _____ **Signature of applicant:** _____

Date: _____ **Name, signature and stamp of Ministry of Foreign Affairs, Permanent Mission to the IAEA or National Atomic Energy Authority** _____