

IGD-TP Symposium and Webinar

The role of optimisation in radioactive waste geological disposal programmes

20-22 September 2022, Zurich, Switzerland
29 September 2022, Online

We are delighted to announce that, following postponement due to Covid-19, registration has now re-opened for the IGD-TP's international symposium on the role of optimisation in geological disposal programmes for radioactive waste. Hosted by Nagra in September 2022, the event is open to anyone interested in geological disposal of radioactive waste.

Geological disposal projects are first of a kind projects, span several decades, and are multi-billion endeavours. In order to build and operate repositories safely, to make consistent progress, and to ensure efficiency, optimisation of all aspects plays a critical role and is a continuous activity throughout its implementation. While safety optimisation is well established, also through international guidelines, optimisation of the implementation of geological disposal has gained increased attention. This symposium and webinar aim to summarise the status of the main aspects of repository optimisation from a technical-scientific viewpoint and to discuss future directions.

To enable access and involvement of all interested parties, the event will be held in two parts. The first, physical event, will consist of a two-day meeting in Zurich with sessions on:

- the role of optimisation in selected national geological disposal programmes
- technology and material optimisation
- lessons learned from optimisation in large infrastructure projects
- integrating optimisation for safety
- global optimisation approaches – concepts and numerical applications

A number of side events will also be arranged to make the most of attendee time. Registration for such meetings will be arranged separately to the symposium.

The third day will provide an opportunity for attendees to tour the Mont Terri or Grimsel underground research laboratories, or the ZWILAG interim storage facility (see overleaf for descriptions). Tour numbers are limited.

Talks and posters presented at the symposium will be recorded and made available online, prior to the webinar.

The second part of the event will consist of a live webinar that will include a panel discussion and question and answer session. Questions can be submitted in advance via the IGD-TP website and during the webinar.

Interested parties can attend the symposium, or the webinar, or both events.

Call for Posters

Throughout the symposium the IGD-TP will host a series of themed poster sessions that aim to showcase the cutting-edge radioactive waste management RD&D of our community. The posters will also be displayed on our website. We strongly encourage you to submit poster applications that align to the IGD-TP [Strategic Research Agenda](#). Poster abstract submission is now open.

Poster submission: Please submit your poster application via the IGD-TP website (www.igdtp.eu). The submission must include the poster title, authors and their affiliations, and an abstract of no more than 300 words. We strongly encourage you to submit poster applications that align to the IGD-TP [Strategic Research Agenda](#); the Key Topic area that your poster is most closely linked to must be identified. There will be a prize for the best poster.

Deadline: Poster abstracts must be submitted by 1 July 2022.

Accepted poster authors will be notified by 1 August and a release consent form supplied at that time. The poster presenter must physically attend the Symposium.

Guidance: Poster sessions will be grouped according to Key Topics in the IGD-TP [Strategic Research Agenda](#). The posters will be set up in the refreshment area within the Symposium venue to increase visibility and attendee interaction. One of the significant advantages of a poster presentation is that it allows one-on-one time with the audience for exchange of information and to answer questions. Poster presenters are encouraged to verbally and visually convey the importance of their subject, including its implications and significance.

The posters will be displayed electronically and must be provided by 16 September 2022 to secretariat@igdtp.eu. A PDF file format is expected to be best, although JPG files can be supplied with ratio 16:9, HD 1920 x 1080 pixels or UHD 3840 x 2160 pixels. The monitors are 55", with dimensions 1250mm x 790mm.

Symposium posters will also be displayed on the IGD-TP website, increasing the visibility of your work.

Note: If you submitted a poster for the original event date, your poster is automatically accepted for the new date. The Symposium organisers will contact you to confirm this and check if any changes are required.

Draft Programme

Symposium: 20-22 September 2022, Zurich, Switzerland

Time (CET)	Item	Chair / Speaker
Day 1 – Tuesday 20 September 2022		
10:30-11:30	Individual arrival and registration	
11:30-13:00	Lunch (finger food) and poster session	
13:00-13:15	Welcome	Matthias Braun (CEO Nagra, Switzerland)
13:15-13:30	The IGD-TP vision and the strategic research agenda; why this is the right time for this symposium	Irina Gaus (Nagra, Switzerland)
13:20-14:30	Session 1: The role of optimisation in selected national geological disposal programmes	<i>Chair:</i> Ingo Blechschmidt (Nagra, Switzerland)
	Optimisation process of deep geological disposal (Cigéo project) in the French context: from feasibility principle to licensing application then progressive development of operation	Pascal Claude Leverd (ANDRA, France)
	The role of optimisation in Posiva's programme	Tiina Jalonen (Posiva; Finland)
	COVRA - Optimisation through international initiatives (<i>working title</i>)	Marja Vuorio (COVRA, ERDO; the Netherlands)
14:30-15:00	Refreshment break and poster session	
15:00-16:25	Session 2: Lessons learned from optimisation in large infrastructure projects	<i>Chair:</i> Jon Martin (NWS, UK)
	Prague City Ring Road - transport engineering construction for the metropolis of the 21st century	Alexandr Butovič (CTU, Czech Republic)
	Application of optimisation to decommissioning at the UK Trawsfynydd nuclear power station - delivery of an optimised site end state	Dan Galson (GSL, UK)
	Success criteria and success factors for the optimal planning, construction and operation of large infrastructure systems	Heinz Ehrbar (ETH Zürich, Switzerland)
16:25-16:40	Refreshment break	
16:40-18:00	Session 3: Technology and material optimisation (part 1)	<i>Chair:</i> Joaquín Farias Seifert (ENRESA, Spain)
	Optimisation of canister design and its lifetime assessment: state of the art and plans within the EURAD CONCORD work package	Nikitas Diomidis (Nagra, Switzerland)
	Container Requirements for High-level Radioactive Waste Disposal in Rock Salt, Claystone, and Crystalline Rock – Outcomes of the Research Project KoBrA	Holger Völzke (BAM, Germany)
	Optimisation in Posiva EBS clay component design – segmented buffer, granular backfill, mixture of crushed rock and bentonite in central tunnels	Johanna Hansen (Posiva, Finland)
19:00-22:00	Dinner at the Sheraton Zurich	
Day 2 - Wednesday 21 September 2022		
08:00-08:30	Arrival and refreshments	
08:30-10:00	Session 3: Technology and material optimisation (part 2)	<i>Chair:</i> Joaquín Farias Seifert (ENRESA, Spain)
	SKB value engineering work (<i>working title</i>)	Johan Hedlund (SKB, Sweden)
	Technical enhancement of wasteforms and their behaviour with the PREDIS project on predisposal waste management	Erika Holt (VTT, Finland)

Issued 13 April 2022

Time (CET)	Item	Chair / Speaker
	Artificial intelligence in radioactive waste disposal research (<i>working title</i>)	Manfred Krafczyk (TUB, Germany)
10:00-10:30	Refreshment break and poster session	
10:30-12:00	Session 4: Integrating optimisation for safety	Chair: PURAM
	Optimisation and the safety case: what have we learnt in the Integration Group for the Safety Case Context	Lucy Bailey (NWS, UK)
	The hybrid and complex nature of the optimization principle: from radiological protection to safety, from ALARA to SAHARA	Christophe Depaus (ONDRAF/NIRAS, Belgium)
	Graded development of geological disposal towards optimised solution	Anne Kontula (Posiva, Finland)
12:00-13:30	Lunch (finger food) and poster session	
13:30-15:00	Session 5: Global optimisation approaches – concepts and numerical applications	Chair: Axel Liebscher (BGE, Germany)
	Optimisation of the thermal aspects of a generic high-level waste repository through Pareto front analysis	Andreas Poller (CSD Engineers, Switzerland)
	ONDRAF/NIRAS geological disposal facility layout update: an optimisation-based approach for the conceptual design	Didier Léonard (ONDRAF/NIRAS, Belgium)
	Optimisation of thermal dimensioning of the Cigéo project: operational goal and scientific key issues	Laurent Calsyn (ANDRA, France)
15:00-15:30	Summary and close	Tiina Jalonen (Posiva, Finland & IGD-TP Chair)
15:30-16:00	Refreshment break	
Day 3 - Thursday 22 September 2022		
08:00 start	An optional visit to the ZWILAG interim storage facility, or the Grimsel or Mont Terri underground research laboratories (URLs). <i>The visits to the ZWILAG interim storage facility will take approximately half a day, so transport home can be arranged for late afternoon. The visits to Grimsel and Mont Terri will take all day; there must be a minimum of 10 participants and a maximum of 23 for these options.</i>	

Webinar: Thursday 29 September 2022, Online

Time (CET)	Item
13:30-16:00	<p>The role of optimisation in disposal programmes</p> <p>Webinar chairs The outgoing and incoming IGD-TP Chairs, Irina Gaus (Nagra) and Tiina Jalonen (Posiva)</p> <p>Panellists from the following organisations are confirmed</p> <ul style="list-style-type: none"> - Stefan Mayer (IAEA) - Chris Boyle (NWMO, Canada) - Jaakko Leino (STUK, Finland) - Reinhard Knerr (WIPP, USA) - Piet Zuidema (EURAD) <p>Each panellist will give a 5 minute presentation on their view of optimisation Questions can be submitted in advance and by the audience during the webinar</p>

Day 3 Tour Options

Rock Laboratory Mont Terri (mont-terri.ch)

The Mont Terri rock laboratory is situated to the north of St-Ursanne in the canton of Jura, around 300 m underground. It is accessed via the safety gallery of the Mont Terri motorway tunnel. The rock laboratory comprises 1200 m of galleries and niches. The horse-shoe shaped galleries are 4 to 5 m high and well-lit. The key question being investigated is: can radioactive waste be stored safely in Opalinus Clay? The Mont Terri rock laboratory is engaged solely in research; no deep geological disposal facility will be built at Mont Terri. There are 22 partners from Europe, Japan, Canada, United Kingdom, the USA and Switzerland carrying out research at the Mont Terri rock laboratory. *This will be a full-day tour including a small lunch.*



Interior view of the Mont Terri rock laboratory
(www.mont-terri.ch)

ZWILAG Wurenlingen (zwilag.ch)

ZWILAG, the Swiss interim storage facility, is a key link between the generation of waste and its disposal in deep geological repositories. Until underground repositories are available, radioactive waste must be kept in interim storage for 30 to 40 years. All categories of radioactive waste generated in Switzerland are processed and temporarily stored in the ZWILAG facility and the neighbouring federal interim storage facility. *This will be a half-day tour and will include a small lunch.*



ZWILAG (www.zwilag.ch)

Grimsel Test Site (www.grimsel.com)

The Nagra Grimsel Test Site (GTS) is an underground research laboratory (URL) located in crystalline rock in the Swiss Alps. Since 1984, Nagra has worked with more than 20 international partners at the GTS to ensure the availability of scientific and technical expertise in the field of radioactive waste management. The research has focused on understanding key processes in the geosphere and engineered barriers, as well as on investigating the behaviour of radioactive materials under realistic conditions relevant to deep disposal. The GTS also hosts large-scale experiments to demonstrate the technical feasibility of complex components at a realistic scale for all types of radioactive waste. The on-site visit will provide an insight into the current status of research activities at GTS and show the contribution of the various experiments to the challenging development, optimisation and implementation of deep geological repositories. Last but not least, the stunning landscape also invites a visit. *This will be a full-day tour including a small lunch.*



Grimsel Test Site (www.grimsel.com)

The previously offered tour of a Nagra drill site is no longer possible as Nagra's exploration programme for the site selection process has now finished. Anyone who registered previously for this tour will be contacted by the Symposium organisers.

Practical Details

Registration: Registration for the Symposium, Webinar or both, is now open via the IGD-TP website (www.igdtp.eu). The total number of participants is limited; registrations will be accepted on a first-come first-served basis.

Registration fee: The costs of both events are subsidised by the IGD-TP. However, a small fee is required to support the Symposium:

- Option 1: Registration fee (€200). Includes participation on both days, refreshments and lunch.
- Option 2: Registration fee and dinner (€250). Includes Option 1 plus a 3-course dinner at the Sheraton Zurich on day 1.
- Option 3: Registration fee and day 3 excursion (€250). Includes Option 1 plus the day 3 excursion (transport, refreshments, lunch, site).
- Option 4: Full package (€300). Includes all options (meeting attendance, dinner and excursion).

The Webinar is free to attend for all.

All registrations would be refunded in full if the physical event were to be cancelled due to the Covid-19 pandemic. Please note that a COVID certificate may be needed for travel and to enter the premises.

If you previously registered for the original event date, you will be contacted by the Symposium organisers to confirm your registration details; there is no need to register again.

Symposium venue: The Symposium will be held at SIX ConventionPoint, Pfingstweidstrasse 110, 8005 Zurich, Switzerland (<https://www.conventionpoint.ch>). Travel directions and advice are provided on the IGD-TP website.

Accessibility: We would like to make this event as accessible as possible. We strongly encourage you to contact us if you need further information or have any queries.

- The conference rooms and toilets are on the same floor and are wheelchair accessible. A hearing loop is available. Service animals are not allowed.
- The conference dinner venue is wheelchair accessible and has accessible toilets. Service animals are allowed.
- For the optional tours on day 3, participants should be in reasonable physical condition as there are some steps to take and a certain distance to walk.

Accommodation: The cost of accommodation in Zurich is not included in the registration fee and must be booked and paid directly by the participant. We recommend the following two hotels, which are both within walking distance to SIX Convention Point:

- Sheraton Zurich - <https://www.marriott.com/hotels/travel/zrhzs-sheraton-zurich-hotel/>
- 25hours-Hotel Zurich West - <https://www.25hours-hotels.com/en/hotels/zurich>. *Note that there are two 25hours-Hotel's in Zurich – please make sure that you book the **Zurich West**.*

You will find more hotels via Zurich tourism: <https://www.zuerich.com/en>

Webinar: The access link will be provided directly to registered participants.

Key Dates

April 2022	Registration re-opens
1 July 2022	Poster abstract submission deadline
1 August 2022	Symposium registration closes and selected poster presenters informed
2 September 2022	Final programme published
16 September 2022	Deadline to supply presentation and poster files
20-22 September 2022	IGD-TP Symposium
26 September 2022	Symposium presentations and posters published on www.igdtp.eu
28 September 2022	Webinar registration and advance question submission closes
29 September 2022	IGD-TP Webinar

Further information will be added to the IGD-TP website as it becomes available (www.igdtp.eu/event/igd-tp-symposium). For any other questions please contact secretariat@igdtp.eu