Safe solutions for radioactive waste

Newsletter

Issue #15
May 2026

Message from the IGD-TP Chair

Markéta Dohnálková,
IGD-TP Chair

Dear colleagues and members of the IGD-TP community,

As we move through 2026, I would like to take a moment to reflect on a very successful close to the past year for the IGD-TP community.

Our Exchange Forum in Prague brought together around 120 participants from across Europe and beyond. It was a truly valuable opportunity to reconnect as a community, share progress across national programmes, and engage in open, expert discussions. The forum was marked not only by inspiring presentations, but also by a strong sense of collaboration and mutual learning that continues to define the IGD-TP.

I was particularly pleased to see the topic of small modular reactors (SMRs) being actively discussed. Their potential implications for our field are significant—whether in terms of ensuring sufficient capacity for operational waste in intermediate-level waste (ILW) repositories or considering future impacts on spent fuel management and disposal in deep geological repositories. Opening this discussion within our platform is both timely and necessary.

This spring is also dedicated to the preparation of the second wave of the EURAD-2 programme. I am pleased to see the Waste Management Organisation (WMO) College is approaching this process with a high level of responsibility and commitment. Together, we have worked to define shared priorities aligned with our Strategic Research Agenda, ensuring that the outcomes will bring value to the entire waste management community.

In April, we also held our regular Executive Group meeting in Hungary, continuing our coordination and strategic discussions in a very constructive spirit.

Thank you all for your continued engagement, openness, and dedication. It is this collective effort that allows our community not only to progress technically, but also to grow stronger together.

I look forward to what we will achieve in the months ahead.

With kind regards,

Markéta Dohnálková

Chair of IGD-TP

Contents

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Editorial team of the IGD-TP Secretariat and project co-ordinators

IGD-TP Exchange Forum

RD&D challenges from siting to industrialisation

The IGD-TP's tenth Exchange Forum (EF10) on research and development (R&D) challenges in geological disposal programmes for radioactive waste was a great success with over 120 attendees from 18 different countries. Our host, SURAO, provided a superb venue and welcoming environment that facilitated an excellent array of presentations and a great deal of discussion and networking.

Geological disposal projects are first-of-a-kind projects, span several decades, and are multi-billion endeavours. National waste management organisations (WMOs) are at different stages on the path to implementing geological disposal and each stage (site selection and investigation, licensing, construction and operation) has particular challenges. The national WMOs shared R&D challenges that each is facing in their current activities and how these are being approached. The Exchange Forum was an opportunity to share lessons learnt and to discuss future research plans.

Our 10th Exchange Forum provides an excellent opportunity to:

— Discuss new issues and the status of WMO programmes.

— Learn about WMO emerging and ongoing RD&D priorities.

— Explore the potential for collaborative research with IGD-TP members and the broader radioactive waste community.

— Present and view posters on work in the field of geological disposal and take advantage of great net-working opportunities.

— Visit research and disposal facilities in the Czech Republic.

— Experience the wonderful city of Prague.

IGD-TP Exchange Forum

Event Summary: Day 1 & 2

Day 1 covered:

— Emerging and ongoing RD&D priorities for those WMOs currently in the process of identifying and selecting a geological disposal facility (GDF) site. Each presenter provided a status update and summary of key activities in the geological disposal programme in that country, followed by a technical presentation of the key RD&D challenges relevant to the current programme stage.

— The most significant and/or most technically interesting challenges during siting and site characterisation from WMOs that have selected a site and advice that they would pass on to the WMOs now undertaking siting.

— Emerging RD&D needs due to Small Modular Reactor (SMR) proposals. There is considerable development in SMRs across many countries, with substantially different designs. This session focused on the different wastes that could result from SMRs (both operational and decommissioning) and which will require disposal, and the RD&D challenges that they pose. Key questions discussed included: What is novel about these wastes? Are there new RD&D challenges beyond those already considered by waste disposal organisations?

Day 2 covered:

— Emerging and ongoing RD&D priorities of those WMOs implementing a GDF at a selected site. Each wpresenter provided a status update and summary of key activities in the geological disposal programme in that country, followed by a technical presentation of the key RD&D challenges relevant to the current programme stage.

— The ongoing and changing RD&D needs as disposal facilities are constructed and operated. RD&D will always be needed due to the length of the disposal programme and updates in the state-of-the-art, changes in regulations, material availability and sustainability, etc., as well in response to information that is obtained at each stage in the process. The views and experience of those operating existing disposal facilities was presented.

IGD-TP Exchange Forum

Event Summary: Day 1 & 2

IGD-TP Exchange Forum

Event Summary: Poster Presentations

Poster sessions were held in conjunction with refreshment breaks on both days. 29 posters were presented covering a range of IGD-TP Strategic Research Agenda topics. The poster titles and abstracts are available here and, where available, copies of the posters can be downloaded here.

During refreshment breaks attendees were asked to vote for their favourite posters. The winning posters were:

— **Poster 2:** Development of a pre-siting safety case for spent nuclear fuel disposal based on Taiwan's crystalline rock – Chin-Hsiang Kang, Ting-Syuan Kuo, Jheng-Jhong Lin, Yu-Ting Su & Tsai-Ping Lee

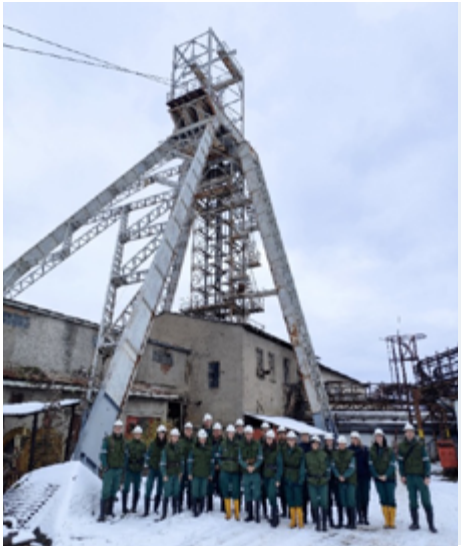
— **Poster 22:** Geotechnical deviation and formation of a fracture system in Konrad shaft 2 – Victoria Schettler

— **Poster 25:** Using limits of life to predict microbial activity and survival in engineered barrier systems – Jessica Mackie and Simon Gregory

Congratulations to the authors of these three posters!

IGD-TP Exchange Forum

Event Summary: Technical Tours



Bukov Underground Research Laboratory

pvpbukov.cz

The Bukov underground research facility (URF) is located 550 metres below the surface in the former Rožná uranium mine, which was the last uranium mine in operation in Central and Western Europe before its closure in 2017. Experiments conducted at the Bukov URF aim to obtain data on the behaviour of the rock environment at the expected depth of the future deep geological repository. It is also used for in-situ testing of the materials being considered for the construction of the engineered barriers. The first section of the Bukov URF was put into operation in 2017 and the second section of the underground complex, which includes 13 test chambers, opened earlier this year.

Richard Repository

surao.gov.cz

The Richard Repository has been in operation for over 60 years. Formerly a limestone mine, a secret Nazi factory and currently the oldest waste disposal facility in the Czech Republic, the Richard facility has been used for the disposal of intermediate and low-level radioactive waste since 1964. The facility is used for the disposal of so-called institutional waste (i.e. materials from the industry, healthcare and research sectors). Some of the waste is accepted for storage (rather than disposal) pending its final disposal in the planned Czech deep geological repository. The Richard disposal facility also includes a certified testing facility for waste packages and special form radioactive substances.

Update from Belgium

Major Steps Forward in Belgium's Nuclear Waste Management

Belgium's national agency for radioactive waste management, ONDRAF/NIRAS, has entered a decisive new phase in its mission to ensure the safe and sustainable management of all radioactive waste in the country. Over the past year, three major advancements have marked significant progress: the start of construction of the surface disposal facility in Dessel, a national policy proposal for radium bearing waste, and a public consultation on the decision-making process for geological disposal of high-level waste.

Surface Disposal Project in Dessel

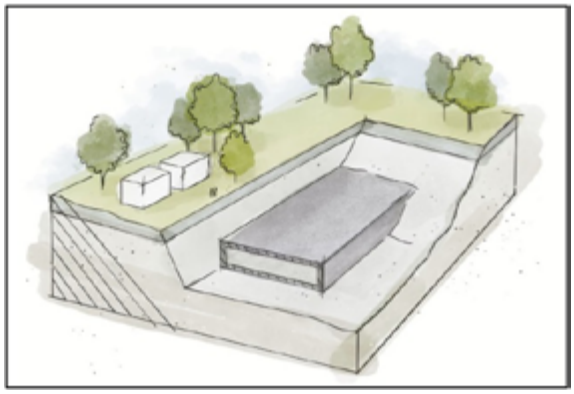
In September 2025, Belgium's Prime Minister Bart De Wever officially laid the foundation stone for the nation's first surface disposal facility for low and intermediate level short lived radioactive waste at Dessel. Managed by ONDRAF/NIRAS, the project will ultimately consist of concrete bunkers housing some 28,000 concrete vaults. Each vault will contain waste that has been stabilised and encapsulated to guarantee long term safety. The facility will be operational for about 50 years before being permanently sealed and transformed into two green hills that integrate naturally into the landscape. The facility will be monitored and controlled for 300 years to ensure safety and environmental protection.

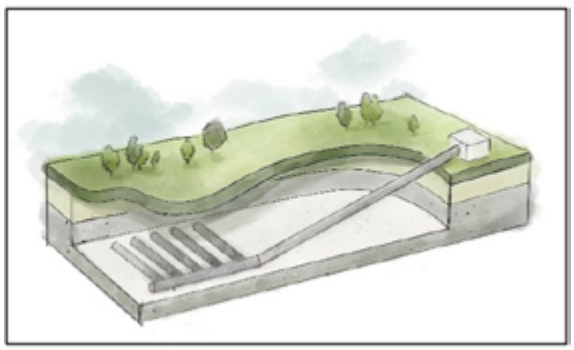
Graphic representation of a cross-section through the filled, structurally enclosed and covered surface disposal facility.

Types of waste packages for disposal.

Policy for Radium-Containing Waste

In September 2025, ONDRAF/NIRAS submitted a draft national policy measure to the federal government proposing near-surface disposal of radium-bearing radioactive waste. This is a unique category of waste which is low-activity but long-lived, primarily from historical radium production at Umicore in Olen. The proposal followed an environmental assessment and nationwide public consultation held between December 2024 and March 2025. Once approved by royal decree, the policy will enable ONDRAF/NIRAS to identify and evaluate a suitable disposal site, with active involvement from local communities.





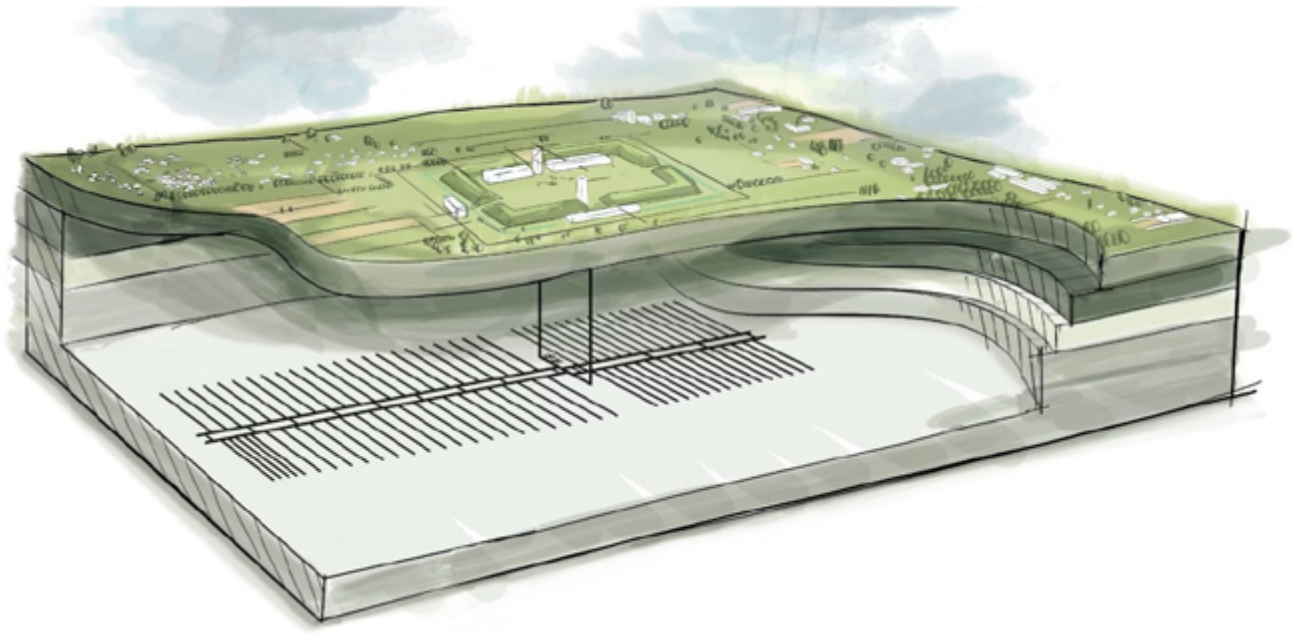
To date, neither the exact location nor the detailed design of the shallow disposal facility has been determined. These sketches show two possible interpretations.

Update from Belgium

Major Steps Forward in Belgium's Nuclear Waste Management

Geological Disposal for High Level Waste

For high level and long lived waste, Belgium has confirmed deep geological disposal as the preferred long term solution. In early 2026, ONDRAF/NIRAS launched a new public consultation on the proposed decision making process for site selection. The initiative outlines how a location for the underground repository will eventually be chosen, with provisions for public input, scientific evaluation, and regular reassessment based on emerging knowledge and technology.



Sketch of the potential layout of a geological disposal facility

Together, these developments demonstrate Belgium's commitment to scientifically sound, transparent, and participatory nuclear waste management. ONDRAF/NIRAS continues to build on more than 40 years of research and dialogue, ensuring that the country's solutions for radioactive waste remain both technically robust and socially supported—protecting people and the environment for generations to come.

For more information see: **https://www.ondraf.be/**

Update from Canada

Progress towards a Deep Geological Repository

The Deep Geological Repository (DGR) for Canada's Used Nuclear Fuel Project (or "the Project) would contain and isolate approximately 5.9 million used fuel bundles, which is the projected total inventory of used nuclear fuel expected to be produced in Canada from the current fleet of reactors to their end of life.

After more than a decade of technical and community-based siting work, the potential project site was selected in the Wabigoon Lake Ojibway Nation and Township of Ignace area of northwestern Ontario. Establishing a safe, permanent solution for this material is essential, both to honour our responsibility to protect people and the environment for generations to come and to ensure nuclear energy can continue contributing to a clean-energy future.

Below are some updates on what's been going on over the past year, as we wrap up the planning phase of our work and step into the next phase of the impact assessment as part of the regulatory decision-making process.

NWMO Manager of Impact Assessment, Dr. Jeff Binns leads an engagement session in northwest Ontario.

Regulatory Decision-Making Process

This rigorous decision-making process will ensure that the NWMO's understanding of the safety of the repository is independently confirmed. It will create new opportunities for the public to continue to have their voices heard on this important project, as well as allow the federal government to undertake a Crown-Indigenous consultation process.

Our work in the regulatory decision-making phase is highly collaborative and creates space for community voice. For example, communities have helped us by providing input into our draft documents and information that will guide further studies and understanding.

About the NWMO

Founded in 2002, the Nuclear Waste Management Organization (NWMO) is a not-for-profit organization tasked with the safe, long-term management of Canada's intermediate- and high-level radioactive waste, including Canada's used nuclear fuel, in a manner that protects people and the environment for generations to come.

The NWMO has been guided for more than 20 years by a dedicated team of world-class scientists, engineers and Indigenous Knowledge Holders who are developing innovative and collaborative solutions for nuclear waste management.

"The next decade of our work will be focused on navigating the robust regulatory decision-making process to deliver on our promise to sustainably protect people and the environment."

Dr. Mackenzie Denyes,
NWMO Director of Impact Assessment and Licensing

Update from Canada

Milestones Achieved, Underway and Planned

Achieved: Initial Project Description

On January 5, 2026, the NWMO submitted the Initial Project Description (IPD) to the Impact Assessment Agency of Canada (IAAC). You can find this and all the other documents mentioned here on the IAAC Project page. The IPD outlines the project's purpose and need, the preliminary assessment of potential effects, and the NWMO's proposed approach to mitigation and monitoring.

The submission of this document began a process of sharing information and iterating based on feedback between the regulators, the NWMO, Indigenous Nations and communities, and the public.

NWMO staff and industry experts collect deep water samples for microbiological analysis.

NWMO President & CEO, Laurie Swami, and Vice President & Chief Engineer Chris Boyle look at a model of the Deep Geological Repository (DGR) for Canada's Used Nuclear Fuel Project.

Underway: Draft Tailored Impact Statement Guidelines (TISGs)

The draft TISGs, when finalized, will explain what information the NWMO must include in their Impact Statement so that Indigenous Nations and communities, and the public, can understand the project and its potential effects.

The posting of the draft Guidelines officially opened a 30-day public comment period, which closed on May 10th.

Planned: Final Guidelines and Studies

After the review process for the draft TISGs, the regulators will issue the final Project Guidelines.

The NWMO will then spend approximately three years conducting relevant studies based on those Guidelines, engaging with the Indigenous Nations and communities, and municipalities who may be impacted by the project work.

Learn More

Our commitment to transparency and dialogue with Canadians and Indigenous Peoples throughout this process remains strong. There will continue to be many opportunities for the public to share their voice and the NWMO to share our knowledge and learnings as we move the Project forward.

You are welcome to see more information at **www.NWMO.ca**, sign up for our newsletter, reach out with any questions to **RegulatoryFeedback@nwmo.ca**, or follow us on **Facebook**, **Instagram**, **X** and **LinkedIn**.

Update from Spain

First phase of Spanish Roadmap to DGR accomplished

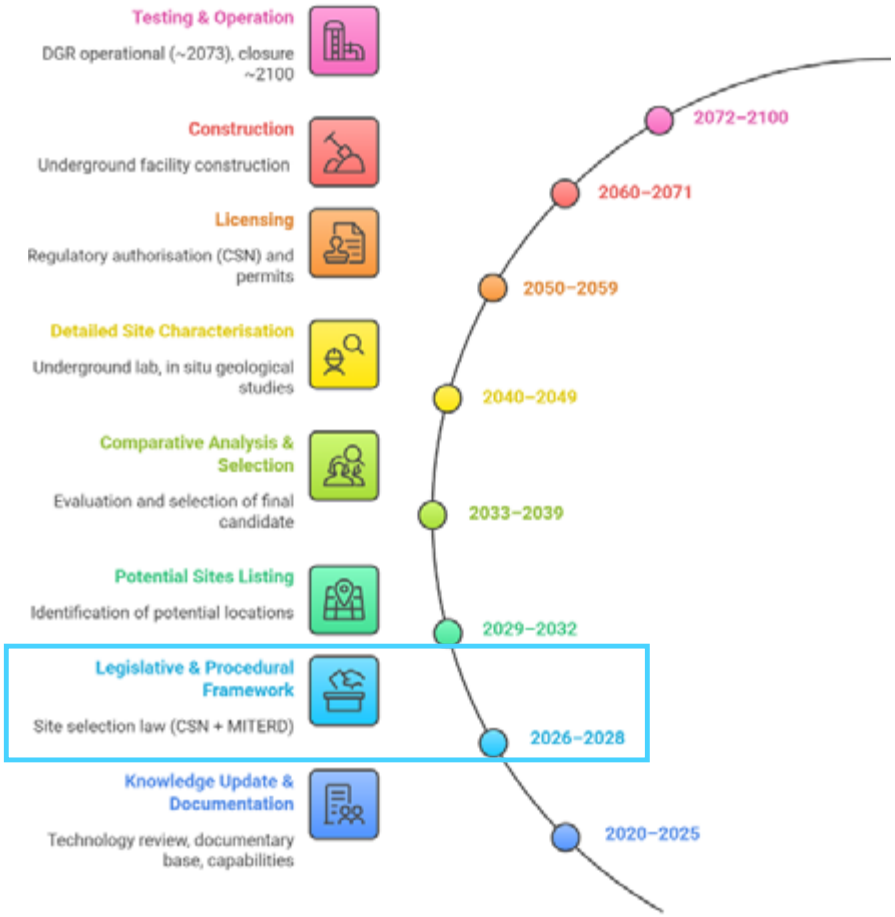
In December 2023, Spain adopted its Seventh General Radioactive Waste Plan (7th GRWP), which sets out the national strategy for the management of radioactive waste and spent nuclear fuel in line with the Euratom Directive.

Looking ahead to the final solution, the 7th GRWP confirms that spent fuel and high level waste will ultimately be disposed of in a Deep Geological Repository (DGR) to be developed in Spain. To reach this goal, the GRWP defines a stepwise roadmap, structured into successive phases that must be completed before repository implementation. According to this roadmap, the site for the DGR is expected to be selected around 2039, with the facility becoming operational by approximately 2073.

The first phase was focused on the consolidation of existing knowledge related to deep geological disposal. Its objective was to recover, and systematically and critically assess the scientific and technical work carried out in Spain in the past, in particular the extensive research and site related studies developed by Enresa and other Spanish institutions between 1984 and 2003. This involved a major effort in gathering and analysing information, undertaken by Enresa. This phase was formally completed in December 2025, culminating in a synthesis report submitted to the Ministry for the Ecological Transition and the Demographic Challenge (MITECO) in January 2026.

The second phase, which has now started, is centred on creating the legal and institutional framework for DGR site selection. A key element of this phase is the preparation of a specific siting law, which is expected to define, at parliamentary level, the principles, steps and guarantees governing the selection process. The approach envisaged in the 7th GRWP combines technical screening with public participation and social debate, with increasing involvement of regional and local actors as the process progresses.

At present, a tripartite working group involving Enresa, the Nuclear Safety Council (CSN) and MITECO are collaborating on defining the contents of this draft law. Beyond this, the tripartite working group is also intended to identify and address any broader legislative amendments that may be necessary to support the future licensing, construction and operation of a Spanish DGR.



IGD-TP Projects

IGD-TP R&D Activities

The waste management organisations (WMOs) undertake many bilateral and multilateral research activities, some of which are organised through the IGD-TP. The ongoing IGD-TP activities, their objectives and current status are summarised in the table below. The scope and progress of two of these projects are discussed in more detail on pages 15 to 18 (RELABEN and Automation).

Activity	Objective	WMOs Involved	Status
PCCS - Post-closure criticality safety	Criticality safety over long, post-closure, timescales is unique to geological disposal. This project aims to benefit WMOs by sharing knowledge and approaches to demonstrating criticality safety, including discussion of applied methodologies, knowledge gaps and results.	NWS, ANDRA, Nagra, ENRESA, SKB, PURAM, BGE, ONDRAF/ NIRAS, NWMO	17 technical workshops have been held to date on specific topics, with annual physical meetings – the third in-person meeting was hosted by PURAM in Budapest in August 2025. Two technical workshops are planned for May and June 2026. The next annual meeting will be hosted by NWS in October 2026.
LOMIR - Long-term monitoring of ^{14}C compounds released during corrosion of irradiated metal	This project continues an ongoing corrosion experiment with irradiated stainless steel. Additional sampling will be carried out to i) verify an increase in the 14C content in the gaseous phase with time, ii) verify constant concentration of aqueous 14C-carrying species, and iii) quantify the retention of 60Co by corroding irradiated steel.	Nagra, SKB, BGE	The original end date was December 2024. However, it was agreed to extend the project to December 2026, which will give 10 years of experimental data.
iCHANCE – Chemotoxic and nonradioactive contaminants evaluation	Understanding the non-radiological and chemotoxic properties of radioactive wastes is essential. This project involves sharing knowledge and approaches in evaluation of the transport of chemotoxic and other non-radiological contaminants.	PURAM, Nagra, NWS, COVRA, ONDRAF/ NIRAS, ENRESA, BGE	The Hungarian version of the final project report is complete. Final updates and translation into English are underway.

Activity	Objective	WMOs Involved	Status
NuSalSus: Nuclear Waste Disposal and Sustainability	This project aims to exchange knowledge regarding the sustainable design, construction and operation of nuclear facilities.	ANDRA, BGE, NAGRA, POSIVA, SKB	A workshop was held in June 2024 and a questionnaire circulated. The identified main topics of interest are material development and selection (low-CO_2 concrete and low-CO_2 steel) and extending life-cycles (re-use of excavated materials and recycling processes). These findings have been sent to participants for review and input on next steps.
Site Characterisation Activity	The project will result in a common understanding of current knowledge, legal requirements, methodologies and technical solutions to site characterisation and uncertainty management in different countries, as well as the transferability of data and information from one site/environment to another. The project will identify possible future activities developed jointly by IGD TP members on 1) advanced site characterisation technologies and/or 2) limits and possibilities of data and geo-information transferability.	BGE, SÚRAO, ANDRA, ENRESA, Nagra, NWS, ONDRAF/ NIRAS, Posiva, PURAM	An online workshop was held in March 2023. It is proposed that there is an annual exchange workshop held each year. The scope of the 2025 EF considered siting and site characterisation, so a separate meeting was not needed in 2025; a one-day online workshop in autumn 2026 is planned.
Research Reactor Fuel Activity	This project considers issues with research reactor fuel including criticality before disposal, disposal canister development, corrosion and gas formation.	COVRA, BGE, Nagra, ONDRAF/ NIRAS, ENRESA	This group does not meet regularly, but the activity is kept open for future information exchange as needed.
NAP: Natural Analogues – needs from implementers' perspective	The aims of the project are: (i) the exchange, compilation and review of the different implementers' use of and experiences with natural analogues (NA), (ii) the performance of a NA gap analysis reflecting the current advancements in many national waste management programmes and the progress of state-of-the-art science and technology, and (iii) eventually to pave the way for future joined R&D activities in the field of NA.	BGE, COVRA, ANDRA, Enresa, ONDRAF/ NIRAS, PURAM	An initial workshop was held in February 2026 where participating WMOs and Chair of NAWG presented their NA-related projects. The project is on hold until the final decision on EURAD-2 funding for the proposed NATSTRAT project is decided.
RELABEN: Stress relaxation of bentonite at high temperatures	The aim of the project is to share information and results from experiments considering the heating-stimulated time-dependent swelling pressure relaxation of bentonite and its irreversibility.	SURAO, Posiva, SKB, NWMO and NWS	The project started in September 2025. See article below for further details.

Activity	Objective	WMOs Involved	Status
Automation and remote control of operational processes in the disposal of radioactive waste	The aims of the project are to (i) gain a common understanding of legal requirements and conditions in the different countries for the use of automated or remote-controlled machines in the disposal of radioactive waste, (ii) gain an overview of the technologies for radioactive waste management already used or planned at the various WMOs, and (iii) identify opportunities for joint development or knowledge exchange on future projects in the context of automated or remote-controlled machines	BGE, Nagra, NWS, NWMO	The kick-off meeting was held in February 2026. See article below for further details.

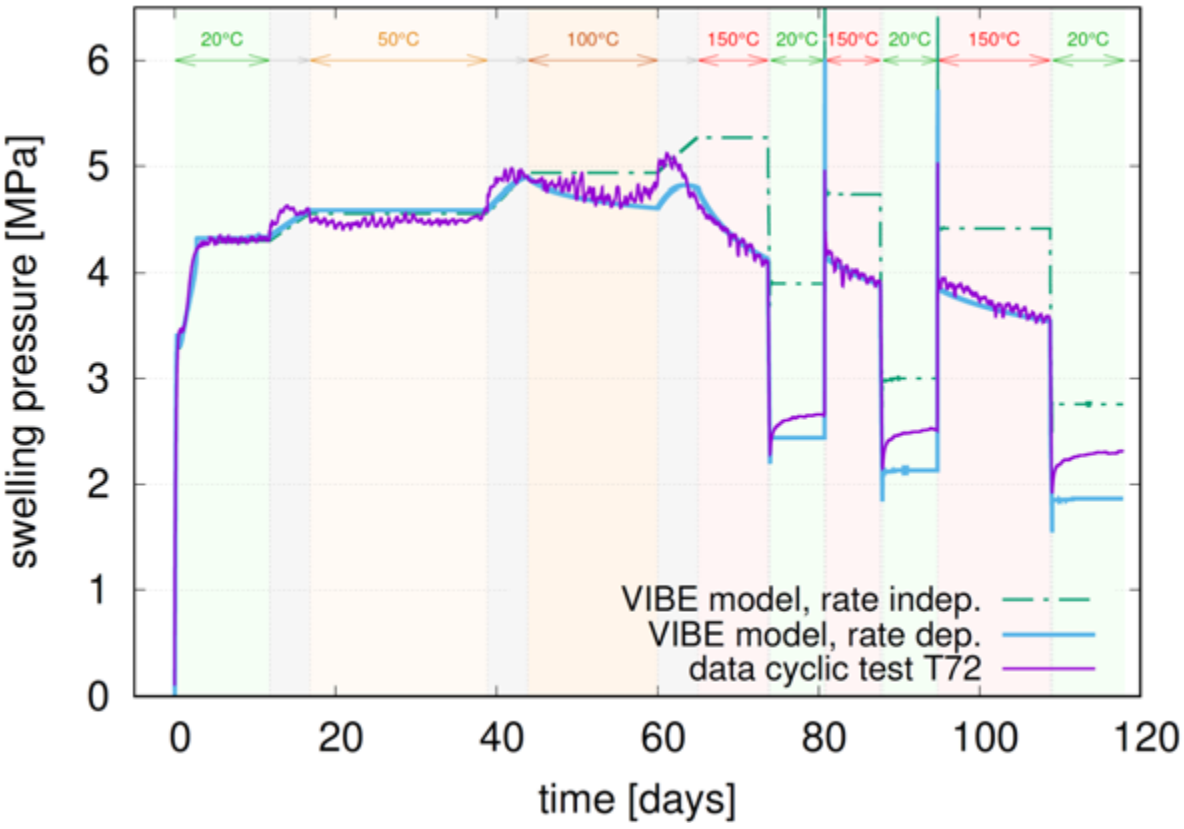
IGD-TP Projects

Stress Relaxation of Bentonite at High Temperatures (RELABEN)

Motivation

The long-term stability of the hydromechanical properties of the bentonite barrier at high temperature is one of the key conditions for the proper functioning of the bentonite barrier in radioactive waste disposal. Experimental research carried out within the EURAD WP HITEC focused on bentonite behaviour at high temperatures (above 100°C). The conclusion of this research was that there are no major mineralogical or chemical changes in bentonite, but unexpected evolution of bentonite swelling pressures with time was observed. The clear decrease with time of the swelling pressure of heated bentonite, referred to as stress relaxation, was monitored and its irreversible decrease after subsequent cooling was observed (see below figure). The phenomenon of stress relaxation at high temperatures was identified by different research groups from different countries participating in the HITEC WP using different test setups and different bentonites. However, the investigation of the time-dependent behaviour of bentonite was not a specific task of the project, it was found as a by-product of the experiments performed and was therefore not investigated in more detail.

The "Stress relaxation of bentonite at high temperatures (RELABEN)" project has been established between the following national nuclear waste authorities: SURAO (Správa úložišť radioaktivních odpadů, Czech Republic), SKB (Svensk Kärnbränslehantering, Sweden), Posiva (Posiva Oy Olkiluoto, Finland), NWS (Nuclear Waste Services, UK) and NWMO (Nuclear Waste Management Organization, Canada). The project started in September 2025, and its duration is 3 years.



Cyclic thermal stress T72 demonstrating increase of relaxation rate with increasing temperature and also demonstrating stress reduction upon cooling. Experimental data from Graham (2023) compared with predictions of VIBE model (Mašín, 2026).

IGD-TP Projects

Stress Relaxation of Bentonite at High Temperatures (RELABEN)

Planned work

The RELABEN project focuses on experimental investigation of stress relaxation of bentonite at high temperatures and constitutive modelling and finite element evaluation of its effect on barrier performance. The project is split into the following tasks:

Experimental investigation:

- Basic stress relaxation tests on different bentonites at elevated temperatures along with cooling experiments. This task will provide complementary results to experiments already performed on BCV and MX80 bentonites.
- Creep experiments at elevated temperatures. This subtask will also help to identify the effect of time on position of normal compression lines. This will provide complementary data to stress relaxation tests needed for model development.
- Advanced stress relaxation experiments. This will investigate the effect of various sample histories. For example, investigation of stress decrease after cooling dependence on various relaxation times at higher temperature.

Modelling:

- Constitutive models will be developed which consider time-effects (both relaxation, creep and time-dependent positions of normal compression lines) on bentonite behaviour. Existing well-established bentonite models, with implementations already available in finite element codes that have been validated using simulations of mock-up experiments, will be used so that the research can focus on specific aspects of rate-dependent behaviour only.
- Implementation of the newly developed models into finite element codes.
- Finite element simulations of bentonite barriers to identify the effect of relaxation and creep on their performance.

Outcomes

The first deliverables, published on the IGD-TP webpage in December 2025, were a State-of-the-Art report and a detailed research plan. The results and conclusions will be published at the end of the project. The project is expected to provide an important advancement in knowledge regarding the effect of temperature-stimulated stress relaxation of bentonite. In particular:

- It will be clarified whether stress-relaxation is a general behavioural feature of bentonite, or whether it is specific to some bentonites only; and
- A more complete picture of rate effects (including creep tests) will be obtained which will enable constitutive model development and validation.

Constitutive models will be developed accounting for stress relaxation and creep. The effect of stress relaxation on barrier performance will be quantified using finite element modelling.

References

Graham (2023)

Graham C. C. et al, HITEC technical report on Material characterisation. Final version as of 09.11.2023 of deliverable D7.8 of the HORIZON 2020 project EURAD. EC Grant agreement no: 847593.
https://www.ejp-eurad.eu/publications/eurad-d78-hitec-influence-temperature-clay-based-material-behaviour

Mašín (2025)

Mašín, David, Viscohypoplastic Bentonite (VIBE) Model, June 2025. Available at SSRN:
https://ssrn.com/abstract=5348185

IGD-TP Projects

Automation and Remote Control of Operational Processes in the Disposal of Radioactive Waste

Project Objectives

The project aims to provide guidance on how disposal and retrieval processes can potentially be automated or managed remotely. To this end, the project intends to establish a knowledge database to make known procedures and technological approaches accessible to project members. In future, this should minimise the development effort required for establishing suitable work methods and developing particular technical solutions.

Work Packages

The working group has divided the project into three technical work packages: the creation of a process landscape, procedures in requirements engineering, and the creation of a database of known technical solutions. The project is based on the concept of a zero-entry mine, i.e. the aim of keeping people out of areas potentially exposed to safety hazards.

In February 2026, the new IGD-TP working group "Automation and Remote Control of Operational Processes in the Disposal of Radioactive Waste" launched with its kick-off meeting. The partners involved at the start of the project are BGE (DE), NWS (UK), NAGRA (CH) and NWMO (CA). The project is scheduled to run from February 2026 to December 2027.

Process Landscape

In the first technical work package, the various national final repository design concepts will be compared and broken down into their individual process steps. This will result in a generic process landscape, that breaks down all sub-processes which could potentially be automated in a deep geological repository. The aim is to take account of the fact that different design approaches – and thus different solutions – exist in final repository planning. One example is the transport of containers underground, which can be carried out, for example, via shaft hoisting or ramp transfer.

Requirements Engineering

The Requirements Engineering work package aims to establish a structured requirements engineering approach and develop a shared database of existing regulatory and design requirements applicable to common processes across participating WMOs, as identified through the Process Landscape work package. This work will consolidate and structure regulatory and technical requirements for automation and remote handling systems in a DGR, emphasising commonality across WMO processes. The resulting requirements database is intended to support consistency, traceability, and reuse of established regulatory references, while also highlighting gaps and areas where national regulations from partner countries may be referenced to support future design development and decision making.

IGD-TP Projects

Automation and Remote Control of Operational Processes in the Disposal of Radioactive Waste

Database Creation

Ultimately, the third work package aims to identify technical solutions within the context of automation. The focus here is also on minimising duplication of effort between the WMOs. At national level, such evaluations are already an integral part of assessing the state of the art in science and technology. At the same time, specific development projects are commissioned via the national WMO, often within their own national context. Here, the establishment of a joint database is intended to create greater transparency between the WMOs regarding known solutions. Regardless of whether a plant or machine could be transferred in its entirety or merely in parts, this gives every organisation the opportunity to identify suitable approaches and contacts within an international context.

The Project Team at the kick-off meeting hosted by Nagra in February 2026.

Following the kick-off meeting in February, the focus is now on developing the process map, which will serve as the basis for all subsequent activities. In parallel, ongoing reference projects within the WMOs, relating to requirements engineering and the assessment of the state of the art in science and technology, are currently being explored. The objective is to establish the aforementioned best-practice approach by summer 2027, as well as to provide a structured overview of known standards, regulations and technical solutions. The knowledge database is ultimately scheduled to be established by the end of 2027. Interested WMOs are warmly invited to engage in dialogue with our working group, and the opportunity to participate in the project is open to all IGD-TP EG/associate member WMOs. Please email the **IGD-TP secretariat** to be put in touch with the project team.

Secretariat News and Meeting Announcements

Secretariat News

Currently 141 member organisations across 27 countries.

New IGD-TP Members

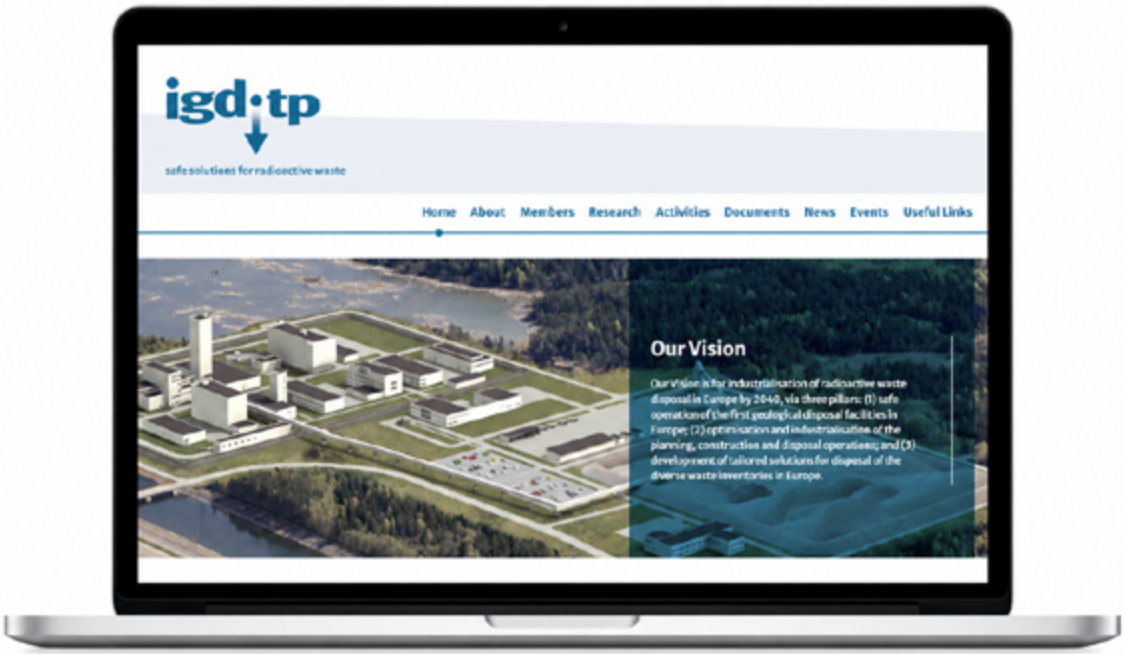
Since our last newsletter we have welcomed one new organisation to the IGD-TP:

— TU Delft - Faculty of Civil Engineering and Geosciences (Netherlands) contributes strong expertise in geomechanics and underground structures relevant to the geological disposal of radioactive waste. They carry out research on the behaviour of geomaterials, with a particular focus on coupled multi-physical processes governing the feasibility and long-term performance of geological repositories. They offer experimental facilities for the imaging and testing of geomaterials, alongside expertise in the laboratory characterisation of natural clay formations. Their capabilities also include the development and application of numerical tools for multi-physics modelling, supporting repository design, performance assessment and uncertainty evaluation. For more information see: https://www.tudelft.nl/en/ceg

The IGD-TP now has 141 member organisations from 27 countries active in geological disposal. All our member organisations and their contact points are listed at: igdtp.eu/members

IGD-TP Website

We have continued to develop the activities pages on the IGD-TP website by adding ongoing and collaborative research projects (screenshot of website homepage below). You can now find project summaries, key reports and links to further information for 96 projects. We also announce events and news relevant to geological disposal research on our website. Please contact the IGD-TP Secretariat secretariat@igdtp.eu if you would like to highlight something of interest to our community.



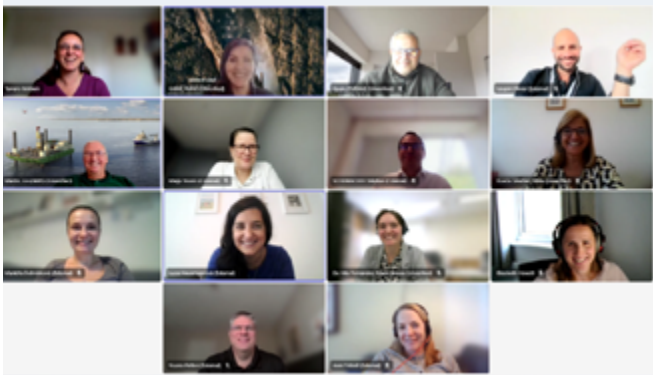
Secretariat News and Meeting Announcements

Other News

44th IGD-TP Executive Group meeting

The 44th IGD-TP EG meeting was held online on the 25th of September 2025. Topics of discussion included:

- The 10th IGD-TP Exchange Forum in Prague.
- News about EURAD-2 and WMO College proposals for the second wave.
- Updates on the status of Deep Geological Repositories in various countries.
- Our IGD-TP Research and Development activities, for example:
    - Launch of the RELABEN R&D project, focusing on relaxation of bentonite at high temperatures.
    - New proposal for R&D activity focusing on graphite.
    - Discussion of planned R&D activities, including a proposed knowledge sharing workshop on microbial activity in bentonite.



45th IGD-TP Executive Group Meeting

The 45th IGD-TP EG meeting was held in Budapest on the 14th and 15th of April 2026.

Two half-days packed with energy, efficiency, and truly engaging discussions. The main topics included:

- the current status of national disposal programmes,
- EURAD-2 and the priorities of waste management organisations, preparation for the next steps and challenges ahead, and
- ongoing IGD-TP R&D activities, as well as ideas for new initiatives, including a microbial workshop and digital tools.

Plenty of inspiration, valuable experience-sharing, and a clear reminder that European-level cooperation really matters.

Secretariat News and Meeting Announcements

Upcoming Events

EURAD-2 Webinars/Workshops
Date: Various dates in 2026
Location: Online

ICMRWSNF 2026: International Conference on Management of Radioactive Waste and Spent Nuclear Fuel
Date: 15th – 16th June 2026
Location: Montreal, Canada

EURAD-2 Annual Event No 2
Date: 8th – 10th September 2026
Location: Dublin, Ireland

A number of training courses to be held at **Grimsel Training Centre**
Dates: Various dates between 21st September and 2nd October 2026
Location: Grimsel Test Site near Guttannen, Switzerland

Webinar Series on Global Progress Towards Sustainable Endpoint Solutions for High-Level Waste and Spent Nuclear Fuel
Date: Various 2026
Location: Online

SKB International Training Courses
Date: Various 2027
Location: Online

ICMRWSNF 2027: International Conference on Management of Radioactive Waste and Spent Nuclear Fuel
Date: 23rd – 24th January 2027
Location: Mandalay, Myanmar

Waste Management Symposium 2027
Date: 7th – 11th March 2027
Location: Phoenix, USA

Clay Conference 2027
Date: 4th – 9th April 2027
Location: Antwerp Central Station

Actinides 2027
Date: 7th – 11th June 2027
Location: Dresden, Germany

Safe solutions
for radioactive waste

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