## Position at EURIDICE / HADES Belgian Underground Research Laboratory

## Research and Development (R&D) engineer in Geotechnics and Stability of underground structures for deep disposal of radioactive wastes

Geological disposal is widely considered one of the safest options for the long-term management of radioactive waste, especially for high-level radioactive waste and spent nuclear fuel. This approach involves isolating the waste deep underground in a stable geological formation, typically hundreds of meters below the surface. The goal is to prevent radioactive materials from interacting with the biosphere by using multiple layers of protection (e.g., engineered barriers, rock formations) that contain and isolate the waste for thousands to millions of years.

The Belgian R&D programme for geological disposal is not yet at the stage of siting but deep clay rocks are considered as possible candidate hosts and the current, generic concept considers an engineered barrier system that includes metallic, concrete and clayey components for the containment of the waste and sealing of a repository.

In support to this R&D programme, EURIDICE operates the underground laboratory HADES that was built in the 1980s at 225 meters underneath the premises of SCK CEN and that has been progressively extended in close collaboration with ONDRAF/NIRAS, the Belgian agency that manages the radioactive waste. ONDRAF/NIRAS is in charge of the development of a long term solution and steers the R&D to that aim. As a research centre focused on the civilian use of nuclear technologies, SCK CEN is an important contributor to this programme. At EURIDICE, engineers and scientists explore construction techniques and structural materials for building underground infrastructures and perform research on the long-term behaviour of host rocks as natural barriers for the confinement of radioactive waste.

Your role as a research engineer in the EURIDICE team:

- Carry out or contribute to feasibility studies for a future geological disposal facility. You will focus on geotechnical engineering in deep geological layers for the construction of access shafts and galleries for the disposal of radioactive waste and on the development of the engineered barrier system (e.g. from disposal packages to repository sealing structures)
- Actively participate in R&D studies about rock-structure interactions, short- and long-term Thermo-Hydro-Mechanical-(Chemical) (THMC) behaviour of engineered materials and of the host rock as a natural barrier. These studies might include the interpretation of lab and situ experiments and the use of numerical modelling tools to investigate multi-physical processes in geomaterials
- Support the integration of these studies towards the development of a geological repository system that needs to be feasible and safe during the operational phase and after repository closure.
- Report the results to internal and external clients and stakeholders through progress meetings, periodic technical reporting, synthesis reports and peer-reviewed scientific publications.

**Qualifications and skills**

- Civil engineer and/or PhD in mining, geotechnical or civil engineering with a solid basis on geotechnical modelling and stability of underground structures
- Knowledge in soil-rock interactions and multi-physical coupling (e.g. thermo-hydro-mechanical) in low-permeability geomaterials and/or engineered materials;
- Hands-on experience with finite element modelling tools such as COMSOL, PLAXIS or similar.
- A few years of experience in a Research & Development (R&D) environment would be a plus
- Good communication skills in French or Dutch, and English
- Good writing skills for technical and scientific documents (mostly in English: technical notes, scientific reports and scientific papers)

Information on eligibility criteria and application procedure can be found on:
https://www.sckcen.be/en/careers/vacancies/geotechnical-engineer

The closing date for application is 5 September 2025.

If you require further information, please do not hesitate to contact us:

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