Joint Project – Nuclear Risk & Public Control

Webinar

Status of Deep Geological Repository preparation and connection to draft EU Taxonomy

May 06, 2022

Report

For this webinar, about 36 **participants** from 17 countries registered, and about 17 took part.

The **presentations** can be downloaded from our website: http://www.joint-project.org/

Patricia Lorenz

Patricia reported a short report on the recent OECD-NEA conference "Sixth International Conference on Geological Repositories (ICGR-6): Advancing Geological Repositories from Concept to Operation" that took place from 04-08 April 2022 in a hybrid form. As a first general impression it can be said that technologies for deep geological repositories were presented as evolved, public acceptance and stakeholders continue being a challenge. UK is now preparing 3 sites, two are sites close to Sellafield with communities which participated in the process which failed in 2014 and one on the East coast those, underinvested and depressed. In Canada two sites are working with communities living there, both are in the territories belonging to native Canadian population. When the proceedings will have been published, the Joint Project will look at it in more detail.

The Joint Project believes it to be important to discuss the development of the KBS-method in Finland and Sweden together with the "nuclear in the taxonomy"-debate because EU Member States try to fasten up their national DGR plans to fulfil the taxonomy criterion of reaching an operable DGR by 2050. The Czech Republic already announced that it will try to accelerate its DGR programme and plan to start operation of the final repository in 2050 instead of 2065.

Johan Swahn

Johan reported in detail of the KBS method and MKG's work on it. His presentation can be downloaded on our website.

Johan showed results from copper corrosion studies. But the copper canister with their corrosion problem are not the only critical barriers of the KBS method, also the clay and the host rock showed problems. Clay is expected to swell when it gets into contact with water, but due to the tight host rock this might not happen and water start flowing in the tunnels.

He reported on the Swedish governance and decision-taking, and why MKG has appealed the Swedish government's decision to approve the repository for spent nuclear fuel as a radioactive waste in Forsmark.

Gabriele Mraz

On the KBS method, Gabriele showed a figure on the planned operation start dates for DGRs in EU Member States – mostly not before 2050. But in recent EIA procedures, Slovenia and UK announced their intention to use the Swedish KBS-3 method for their future DGR. This uncritical approach should be questioned.

Discussion

Difference Finland-Sweden: Finland does not have such an active civil society as Sweden; the Finnish Onkalo project is more an industrial project, in Sweden it is more an environmental project

Topics that are of high importance besides copper and KBS issues:

- How to inform the future about the repositories – developing of Rolling Stewardship models
- Intrusion in a DGR

Question of safety culture and corruption

It is problematic if research results are dismissed because they do not "fit", is a problem of the safety culture

In 2010, a scandal became known, when SKB had manipulated a research report – not all data were reported. While it later turned out that it was wrong data, this approach is not scientific. SKB commented by saying: "We only publish results we believe in".

Only one company, Clay Technology, makes the clay studies for SKB. The company works almost 100% for SKB and is entirely dependent on financing resulting in a problematic approach to scientific integrity.

SKB attacks immediately in the scientific literature if other people come up with copper results that do not fit what the company believes; this creates a very negative publication atmosphere for copper corrosion studies.

More research is needed; but the stronger the interest behind the more difficult it is for science to work properly

Governance:

Who has the final say in Sweden? The government, but it still has to follow the law, and this is checked by the Supreme Administrative Court. If this court rejects the government decision, the government can try to make a new decision or it could pass the case down to the Land- and Environmental Court again. That could get SKB to do more research or have others do research paid for by SKB.

More on copper problems and its alternatives:

It is not true in general that no other material than copper would work in KBS, also steel might work, as was pointed out by a professor from US (Digby Macdonald) –but we have to be aware that this relates to the Swedish situation with the tight host rock and the clay buffer have to work perfectly.

The copper canisters are supposed to stay intact for 100 000 years or more, but very competent researchers at the Royal Institute of technology (KTH) are convinced that they will start to break apart after only a couple of hundred years.

Deep boreholes are more environmentally safe, have less intrusion problems and could actually be less expensive than mined repositories.

The pitting corrosion is going on, build-up of hydrogen that causes brittleness inside the canister, pressure at the bottom because the canister is heavy, there will be a collapse of the copper canister downwards resulting in leakage

Even in Finland not been much clay research has been conducted so far; but also LOT experiments point to problems with clay. How to seal tunnels has not been successfully answered.

The effect on other countries:

Will it be possible for other countries to take over the licensing done in Sweden/Finland as such?

No, because their bedrock is different at different sites; but a safety case it quite simplistic, and it might be easier to get a good result also in other bedrock.

This event was organized by the Joint Project – Nuclear Risk & Public Control (http://www.joint-project.org/)

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