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Media dossier CC 2017: Waste disposal

International Conference in Davos on radioactive waste disposal

More than 400 experts from around the world to exchange scientific findings

For three days, everything in the Davos Congress Centre will revolve around radioactive waste disposal, with more than 400 scientists and engineers from 23 countries participating in the 2017 International Clay Conference. The topic is clays and clay materials in the confinement of radioactive waste. Clay is being considered as a potential host rock for a deep geological repository in many countries and clay materials are also used in the engineered barrier system of a repository. Switzerland has selected the Opalinus Clay as the host rock for constructing its repositories.

Nagra (Swiss National Cooperative for the Disposal of Radioactive Waste) is organising the Conference. "International collaboration is of key importance in the research on safe waste disposal", says Nagra geologist Dr. Andreas Gautschi. This collaboration is evidenced on the one hand by joint research projects in research laboratories, but the Clay Conference is also a good example of international scientific exchange. The programme includes around 130 presentations and 240 posters, as well as seminars, workshops and excursions aimed at providing more detailed information on specific aspects.

Switzerland will construct deep geological repositories in the Opalinus Clay formation – this represents an interim result of the ongoing site selection process in the context of the Sectoral Plan for Deep Geological Repositories. The Opalinus Clay occurs over large areas of Northern Switzerland and was deposited around 175 million years ago when large parts of Switzerland were covered by a shallow sea. The Opalinus Clay is a very tight, virtually impermeable rock in which waste can be confined safely.

Besides Switzerland, countries such as Belgium, Germany, France and Canada are also considering clay as a host rock option. The Swiss programme also foresees the use of clay materials as engineered barriers for backfilling of disposal rooms and in sealing zones. The use of clay materials as engineered barriers is also planned in several countries with advanced disposal programmes and international exchange among scientists is both valuable and important.

The 2017 Clay Conference is being held for the first time in Switzerland and is organised by Nagra. Cooperating partner organisations are ANDRA (France), COVRA (The Netherlands), KORAD (South Korea), NUMO (Japan), NWMO (Canada), ONDRAF/NIRAS (Belgium), POSIVA (Finland), PURAM (Hungary), RWM (United Kingdom), SKB (Sweden), SURAO (Czech Republic) and swisstopo (Switzerland).

Site selection for deep geological repositories:

The aim of the three-stage Swiss site selection process is to identify the safest site(s) in Switzerland for constructing deep geological repositories. The procedure is defined in the Sectoral Plan for Deep Geological Repositories, with the Swiss Federal Office of Energy as the lead organisation. Using criteria defined by the Federal Government, Nagra's task is to make siting proposals based purely on scientific findings. Nagra's proposals are reviewed by the regulatory authority, the Swiss Federal Nuclear Safety Inspectorate (ENSI). Each of the three stages in the process ends with a decision of the Federal Council. We are currently in the middle of the second stage, with the decision of the Federal Council expected for the end of 2018; the third and final stage will then begin. Definitive site selection is expected around 2030 and the possibility exists for an optional national referendum on the decision. According to the current timetable, operation of the low- and intermediate-level waste repository will start in 2050 and emplacement of high-level waste will start in 2060.

According to Swiss nuclear energy legislation, the producers of radioactive waste are responsible for its safe management and disposal. In 1972, the nuclear power plant operators and the Federal Government set up the National Cooperative for the Disposal of Radioactive Waste (Nagra) to perform this task. Nagra, with headquarters in Wettingen (AG), is the national technical competence centre in the field of deep geological disposal of radioactive waste.

Out of a strong sense of responsibility for the long-term protection of man and the environment, 120 employees are involved daily in performing this important work. The high level of competence is secured by targeted research programmes in two Swiss underground rock laboratories and intensive international collaboration.