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Verantwortung
für Generationen
Responsibility
for Generations

DBE-TEC
DBE TECHNOLOGY GmbH



Lecturers (first row) and participants of the IAEA training course in Nanchang (China)



Geological field trip during the IAEA Technical Meeting in Canada



At the same time, our conviction that our small company should become an autonomous but well-integrated part of BGE has been confirmed. We are convinced that the merger and the change of our shareholder will not affect the continuance of our operation in any way but will rather open new prosperous opportunities for us. As a consequence, our company will be renamed BGE TECHNOLOGY GmbH after completion of the partially complicated legal procedures.

Dear readers,

We are pleased to confirm that the merger of the recently founded Federal Company for Radioactive Waste Disposal, BGE, with our parent company DBE and with the operator of the Asse mine, Asse GmbH, has been completed as scheduled on January 1st, 2018. The corresponding reorganisation took almost three years. As a result, Germany now has a single, fully competent, and capable implementer of its radioactive waste management programme with a combined special expertise of more than 1,500 engineers, scientists, miners, and employees from other fields.

On this account, we have changed the look of our newsletter slightly. We will continue to share with you impressions from our work in Germany and abroad, and we will be happy to report on our joint activities in the near future.

With this in mind, we look forward to staying in touch with you.

Happy reading!

Dr. Jürgen Krone
Managing Director
DBE TECHNOLOGY GmbH

IAEA Training Course on Siting of HLW Repositories in Sedimentary Rocks

Upon request of the Chinese government, IAEA initiated a national training course on siting of HLW repositories in clay formations, which took place in Nanchang (China) from November 27 to 30, 2017. The course was held by experts from ANDRA (France), GRS gGmbH (Germany) and our company.

The China Atomic Energy Authority decided that granite and clay be considered as candidate host rocks for HLW repositories and contracted the East China University of Technology (ECUT) with a preliminary study for assessing the suitability of Chinese clay formations. In the course of their regional scanning, ECUT selected sediments with a high percentage of zeolite and a small fraction of clay minerals from the Tamusu Province (Inner Mongolia) for further investigations.

The experts presented the French and German site selection programmes and their corresponding experience. Common and different criteria in the European and Chinese programmes as well as in the site characterization programmes and the safety demonstration strategies were presented and discussed. The European experts emphasized the necessity of an overall strategy for site selection and characterization, which should be based on the identification of the objectives, on a safety strategy, on criteria for rock evaluation, and on corresponding measures for safety demonstration.

Visit at CNPE (China)

In China, the national programme for the final disposal of radioactive waste is being pushed ahead steadily. Two near-surface repositories for low- and intermediate-level waste (LAW, MAW), which are designed according to international scientific and technical standards, are in operation.

In view of the expected volumes of waste, further regional repositories are to be built. Like in Germany, the possibility of converting existing mines into LAW/MAW repositories is being considered.

Two experts of our company were invited by CNPE (China Nuclear Power Engineering Co. Ltd.) to Beijing in October 2017 to report on the developments and the status of the Morsleben and Konrad projects in Germany.

Furthermore, the biggest challenges and developments in transport and disposal technologies for high-level waste were presented. The intensive discussions were fruitful for both sides. It is planned to continue these discussions in the future.

The stay in Beijing was also used for a meeting with the Engineering Construction Management Centre of China National Nuclear Corporation (CNNC) and with the Beijing Research Institute of Uranium Geology (BRIUG). With both, a long-standing cooperation already exists.

IAEA Technical Meeting in Canada

Upon invitation of the International Atomic Energy Agency (IAEA), a Technical Meeting on the Roadmap for Developing a Geological Disposal Facility took place in Ottawa, Canada, from November 13 to 17, 2017. More than 24 experts from 12 different member states participated in the meeting, discussed the draft report, and provided valuable input to improve the document. Eventually, IAEA wants to publish a roadmap that is to be used as practical and helpful guidance to member states striving to develop or elaborate their national geological disposal programmes. One expert of our company was invited by IAEA to join the Technical Meeting.

Requirements for Disposal Packages for HLW and Spent Fuel

On behalf of the Federal Ministry for Economic Affairs and Energy, the Project Management Agency Karlsruhe (PTKA) contracted our company and the Federal Institute for Materials Research and Testing (BAM) with the R&D project KoBrA. In the course of this project, requirements for waste packages for high-level radioactive waste and spent fuel elements for different host rocks will be identified, and suitable waste package concepts will be developed. Important boundary conditions for canister design are the radionuclide inventory, the surrounding

geosphere, legal requirements as well as demands resulting from repository operation and long-term safety. The main purpose for the waste packages is the safe encapsulation of the radioactive inventory during repository operation and – for a limited period – after repository closure. As a result of the project, suggestions for generic waste package concepts will be provided, and assessments of the implications of design decisions on the design of the entire repository system will be given.



POLLUX®-type disposal container for salt formations



Site for a drift seal at the Asse mine (Germany)

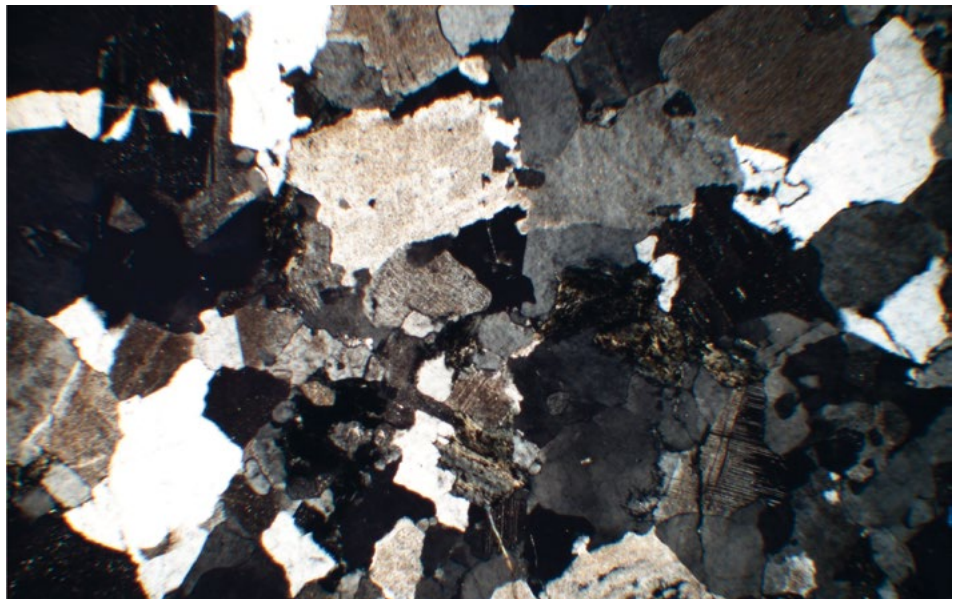
Safety and Safety Demonstration Concepts for a HLW Repository in Crystalline Rock

PTKA contracted GRS gGmbH, BGR, and our company with the R&D project CHRISTA-II to develop a safety and safety demonstration concept for a high-level waste repository in crystalline rock. BGR will develop generic, site-independent geological models that are representative for the crystalline rock formations in Germany. These models will reflect the different types of containment providing rock zones (CRZ) that were identified as potentially suitable to host a repository during the preliminary investigations in project CHRISTA.

Furthermore, a generic FEP catalogue for crystalline rock in Germany will be developed, which – at a later stage – will be the basis for scenario development. Key elements of a safety demonstration concept are the demonstration of barrier integrity and the analysis of

the radiological consequences. A conceptual design of the geologic and the geotechnical barriers will be prepared, and exemplary integrity analyses will be carried out. In addition to this, radiological safety indicators for the CRZ types in question will be calculated. To

demonstrate the integrity, the integrity criteria that are defined qualitatively in the safety requirements will be quantified to such an extent that a mathematical verification can be carried out based on specific numerical values. The results are projected for mid-2020.



Thin section of aplite dike in Piégut-Pluviers Granodiorite (Massif Central, France) (Source: R. Pohl)

For further information, visit www.dbe-technology.de or scan the QR code below.

