

Thermal-hydraulic modeling of mine flooding in Schlema-Alberoda and Pöhla-Tellerhäuser

C&E · Consulting und Engineering GmbH



D-09117 Chemnitz • Jagdschänkenstraße 52
 Tel.: +49 (0) 371 881 4228 • Fax: +49 (0) 371 881 4311
 E-mail: info@cue-chemnitz.de
 Internet: www.cue-chemnitz.de

Project target: Determination of the cavity structure, of the geothermal potential and the inflow conditions and prediction of expected convection conditions.

Location: Aue, Pöhla

Client: Wismut GmbH

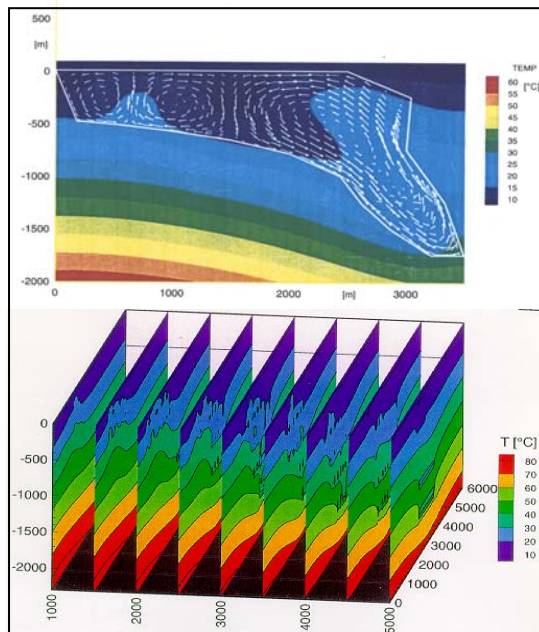
Beneficiary: Wismut GmbH

Time period: 1995 – 1996



Initial situation:

- The uranium deposits Schlema-Alberoda and Pöhla-Tellerhäuser contain mines of nearly 2 km depth, about 90 shafts, ca. 5,000 km of workings and about 50 mil. m³ of open cavity which need to be flooded. The prediction of the potential migration of contaminants to the water courses requires the investigation of the free convection process.



Main tasks:

- Determination of the cavity volumes, the alimentation conditions and the geothermal potential of the three-dimensional distribution.
- Development of a 2D-design-model and 3D-structure-model.
- Numerical modeling of the thermal-hydraulic processes in the mines and their temporal development after the mine flooding.
- Prognosis of the impact on the temperature distribution in the out flowing flooding water and its quality.

Distribution of free convection loops (3D-Model of the steady-state temperature distribution, mine Schlema-Alberoda)