

Securing of surface shafts of the uranium ore deposit Aue in hard and competent rocks

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Project objective: Elaboration of drawings in approved and workable form for the safe closure of the shafts N°371, N°372 and N°373 (with depths between 680 m and 1160 m) using vertical concrete plugs near to the surface or filling up the shafts completely with gravel and waste rock material to secure public safety after the permanent closure of the uranium ore mine.

Location: Saxonia

Client: WISMUT GmbH

Beneficiary: WISMUT GmbH

Time period: 1990 – 2000

Initial situation: After finishing the active mining process in the region of Aue it was necessary to secure a great number of mining shafts. There was a need to elaborate conceptual and pre-planning documents for the closure the shafts considering the different geological and geomechanical conditions. In case of the shafts N°372 and N°373 it was necessary to plan a complete backfilling of the shaft structure. Since exploration drillings near the shafts N°366 and N°371 indicated a hard and competent rock, it was possible to use vertical concrete plugs. This was the most difficult technical solution, however the most cheapest one. In this case the shaft has not to be backfilled or only in part.

Main tasks: Elaboration of the technical solution for all planning stages from the pre-planning to workable drawings including required static calculations and investigations into the special fields of :

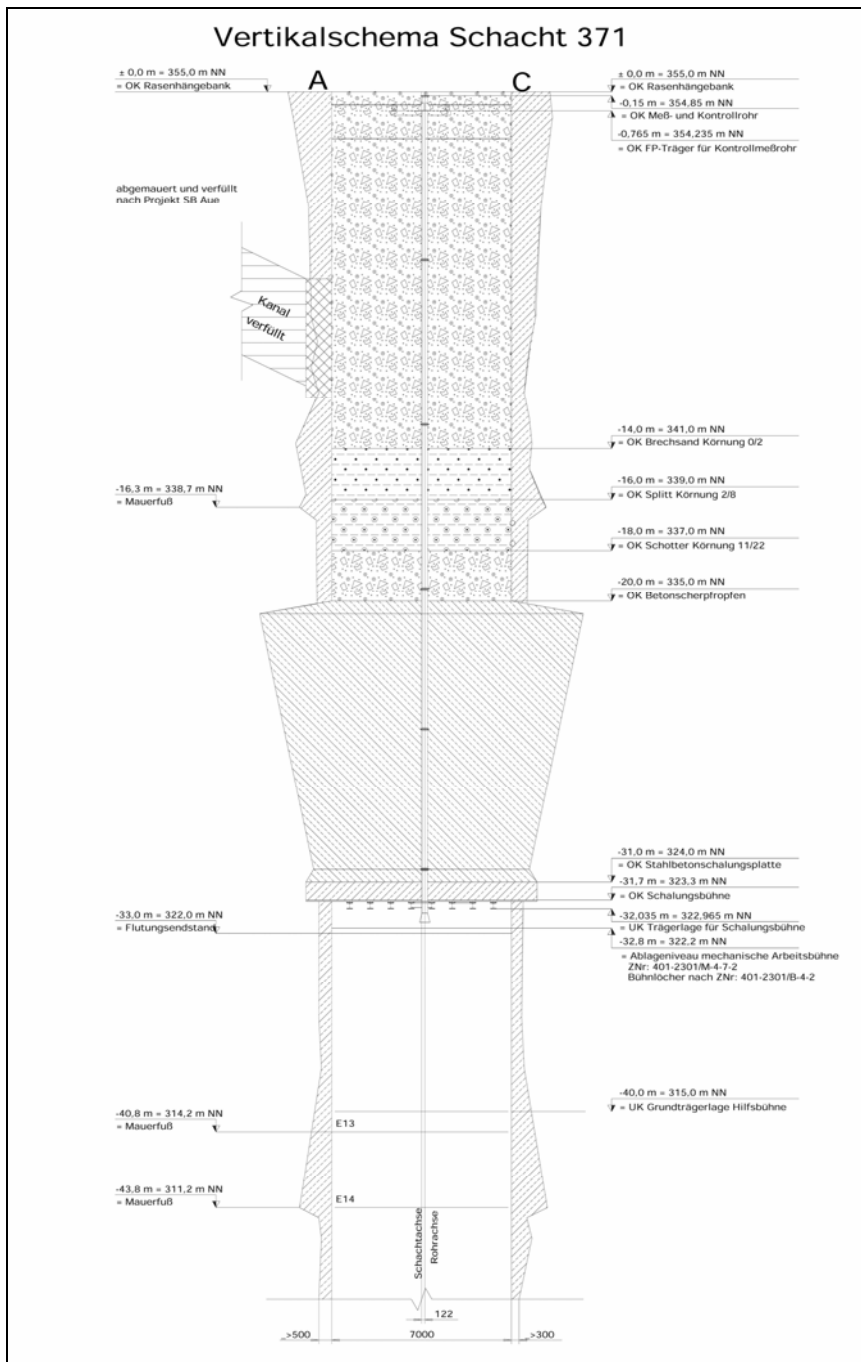
- mining/geomechanics/building trade
- mechanical conveying
- electrical equipment
- planning material to get official permission from the mines inspectorate
- consulting during project execution

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Overall structure of the shaft securing with concrete plugs