

Underground protection buildings elaborated for an accumulated backwater pressure of 23 bar

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Project objective: Planning and installation of underground protection buildings consisting of 16 concrete plugs (FDD) and 4 concrete plugs with buildt in steel dam doors (FDT)

Location: Saxonia

Client: WISMUT GmbH

Beneficiary: WISMUT GmbH

Time period: 1995 - 2001

Budget: about 500,000 EURO (for planning, supervision)

Initial situation: The uranium ore deposit Königstein was excavated by room and pillar mining as well as using underground leaching in the sector of the lowest aquifer. The excavation process was finished in 1990.

At the level of the lowest aquifer a control drift system was excavated around the contaminated area. All horizontal connections between the control drift system and the mine area has to be closed by 16 FDD. In time of flooding 2 shafts have to be in operation, therefore they must be protected by 4 steel dam doors elaborated for a pressure of 23 bar. The plugs were installed using continuous concrete as well as shotcrete.

During the project execution additional technical solutions were elaborated in order to integrate several elements (pipes, cables) of the monitoring system in the protection buildings body. The elements are crossing the concrete plugs, what required special sealing-off technologies. Furthermore it was developed an equipment for changing valves under high pressure conditions of 23 bar.



Concrete plug with dam door for backwater pressure of 23 bar

Main tasks:

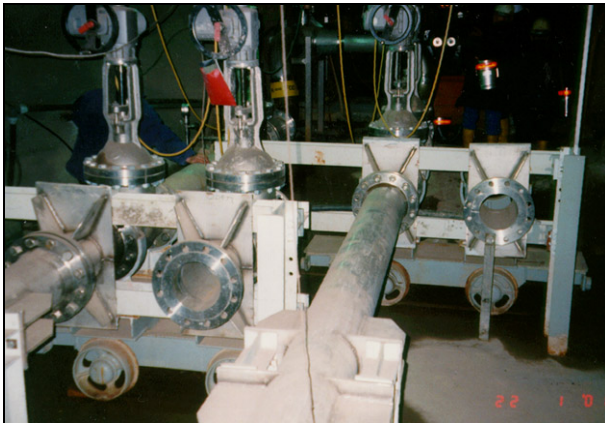
- investigation of rock parameters
- dimensional analysis
- stability certificate
- preplanning
- preparation of planning material to get official permission from the mines inspectorate
- detailed blue prints and work drawings
- consulting during project execution
- supervision
- documentation.

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Construction for the change of valves under backwater pressure of 23 bar



Pipelines are crossing the concrete plug body



Detail of a dam door integrated in a concrete plug