

Contract awarded for two large-diameter borehole drillings in the filled shaft column at Haus Aden number 1 shaft

RAG has commissioned the drilling consortium of Thyssen Schachtbau GmbH, Mülheim/Ruhr, and Daldrup & Söhne AG, Ascheberg, to sink two 1,000 m-deep and 1.2 m-diameter boreholes in the filled shaft column at Haus Aden number 1 shaft in Bergkamen. The two boreholes will later be equipped with pumps for the planned mine-water drainage system.

Haus Aden number 1 shaft, like the number 2 shaft just a few metres away, was sunk by Schachtbau Thyssen between 1938 and 1941 as a winding shaft for Haus Aden colliery. After the merger with Grimberg 3/4 in 1970, which was followed by the incorporation of Monopol colliery in 1993, the complex was finally integrated with Heinrich Robert mine in 1998 to create the new Ost colliery. Production ceased at Ost colliery on 30.09.2010. The 7.2 m-diameter Haus Aden number 1 shaft was permanently decommissioned in 2001, when the shaft column was filled-in over its entire length of some 1,054 m. The headgear and surface installations at number 1 shaft have since been demolished.

Haus Aden 1/2 shafts are now to be used for future mine drainage operations. This will involve drilling two holes down through the filled column of number 1 shaft to a depth of 941 m and then preparing these boreholes for long-term use. Submersible pumps will eventually be installed at the bottom of the boreholes. The operation will commence with a pilot hole, which is then to be widened out to a diameter of 1200 mm using the raise boring method. A number of stabilisation measures will be available in the event that the borehole encounters stability problems. Restoring borehole stability over the length of the 1,000 m-long, 1200 mm-diameter hole, if required, would indeed present a unique challenge for the drilling team. The second borehole will then be drilled and the same technique will be employed, if conditions dictate.

The limited space available in the column, where some of the in-shaft fittings are still in place, and the shaft's inclination from the vertical, will impose an enormous challenge on the team responsible for the accuracy and precision of the directional/enlargement drilling. A specially developed measuring system should ensure that this is technically feasible.

For both Thyssen Schachtbau GmbH and Daldrup und Söhne AG the project will mean venturing into new territory and the operation will constitute an engineering first as far as borehole precision and side-wall stabilisation are concerned.

Following a Europe-wide tendering process that lasted almost six months the technical quality and bid price of the tender submitted by the bidding consortium of Thyssen Schachtbau GmbH, Mülheim/Ruhr, and the Ascheberg-based Daldrup und Söhne AG ultimately proved decisive in the face of some stiff competition.

The project is to be carried out during 2011 and 2012.

Dr Axel Weißenborn

Tilo Jautze

Mülheim an der Ruhr, March 2011

Sources:

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RAG Deutsche Steinkohle: <http://www.rag-deutsche-steinkohle.de>