

ENHANCED SALT CAVERN CONSTRUCTION BASED ON THE INTERACTION OF SOLUTION MINING TECHNIQUES AND GEOLOGICAL 3D-MODELLING

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ABSTRACT

The understanding about the distribution of different stratigraphic subunits within complex salt structures has been proven to be crucial for an optimized salt cavern construction by solution mining. In this respect, the compilation and interpretation of borehole data from cavern wells by the use of 3D-modelling techniques has been shown to be a profitable basis for the setup of the initial solution mining concept and its reevaluation during the entire mining phase. The recurring comparison of the initial geological model with any additional information retrieved from e.g. brine analyses, sonar surveys or additional methods such as Ground Penetrating Radar (GPR) can be used to refine the solution mining concept, as well as to revise the first geological interpretation. This paper describes how the strong interaction of solution mining engineering and geological interpretation are used to minimize geological risks and to optimize the exploitation of large but complex salt deposits.