FULL GEOMECHANICAL MODELING
AND DATA MANAGEMENT
OF A GAS-STORAGE FACILITY USING LOCAS 3D

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Abstract

LOCAS is a huge software suite that has been developed continuously for 20+ years, especially for the purpose of analyzing salt caverns. LOCAS is able to couple cavern thermodynamics and rock-salt complex geomechanics properly. This is of upmost importance for problems such as gas-storage management, caverns stability analysis, subsidence calculation, or cavern-abandonment.

LOCAS provides a very user-friendly interface, usable by non-experts, which allows input of field data and calculations parameters, and also a very powerful finite-element core for stability analysis of caverns in the short or long term. LOCAS has been designed for all type of salt caverns: for brine production, liquid storage or gas storage -including all type of gases. The new 3D version allows collection of numerous data related to a facility in one single place.

Some features of LOCAS 3D are shown through the example of a gas-storage facility. The whole history of the facility since its creation is modeled and a quick stability analysis is performed.

Key words: Computer Software, Computer Modeling, Rock Mechanics, Storage Cavern, Hydrogen