Determination of Allowable Operating Pressures for a Gas Storage Cavern Located Close to a Tectonic Fault

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Abstract

The determination of the allowable operating pressures for gas storage caverns is generally made using geomechanic models where location-specific input data are implemented. For the a.m. objective the most frequently used model geometry is the axial-symmetric one. However, bedded salt deposits are often characterised by structural elements resulting from tectonic events. For caverns which are located very close to tectonic faults an axial-symmetric model is unable to reflect the real secondary stress field in the cavern surroundings.

At the gas cavern storage Epe, Germany, the geomechanic interactions between the gas storage operation and a cavern-near fault zone have been investigated with a 3D-geomechanic model.

The methodical approach for modelling and evaluating such complex geomechanic systems as well as the general influence of tectonic faults on the allowable operating pressure of a gas storage cavern will be presented in the paper.