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**Meeting Paper**



**Assessment of Sinkhole Formation Potential  
Above Brine Caverns**

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by

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# **ASSESSMENT OF SINKHOLE FORMATION POTENTIAL ABOVE BRINE CAVERNS**

## **Abstract**

This paper presents an approach to evaluate cavern roof stability in brine field operations. Special emphasis is made on evaluation of potential for sinkhole formation and for development of excessive ground subsidence above the caverns.

A brief summary of the theoretical basis to assess the arching capacity of subsurface material is presented. A series of well-documented case histories, where adequate as well as undesirable ground behavior was observed, are summarized and key parameters of those case histories are used to validate the analytical approach proposed in this study.

Lastly, a series of guidelines are proposed to provide the basis for a preliminary dimensioning and design of producing caverns. Specific analysis, based on adequate characterization of subsurface materials in situ, can also be carried out using the approach proposed in this paper.

A computer code for the design of new caverns and for the check of sinkhole occurrence (Vulnex Code), developed on the basis of the theoretical approach, is also presented.

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