

SOLUTION MINING RESEARCH INSTITUTE

**1745 Chris Court
Deerfield, Illinois 60015-2079
USA
847-374-0490**

**Meeting
Paper**



Geomechanical Predictions and Operational Control of Cavern Convergence and Subsidence Due to the Solution Mining Procedure

**B. A. Krainev
A. V. Kublanov
Y. D. Semenov**

**VNIIG Research & Development Institute of Halurgy
Narodnogo Opolcheniya Av. 2
198216 Saint Petersburg
Russia**

**A. A. Baryakh
N. A. Eremina**
Mining Institute
Perm City
Russia

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GEOMECHANICAL PREDICTIONS AND OPERATIONAL CONTROL OF CAVERN CONVERGENCE AND SUBSIDENCE DUE TO THE SOLUTION MINING PROCEDURE

1.0 INTRODUCTION

This paper presents some aspects of the earth surface subsidence during saline solution mining and of cavern stability in saline formations.

Below given results of studies on the surface subsidence (shifting), their principal outcome being development of a subsidence model for brine excavation by the underground saline solution mining at the Yar-Bishkadak brine field operations (Southern Ural mountains, Russia).

The problem of stability for solution mining caverns has been treated from the viewpoint of possibility their use as hydrocarbon storages. Results of research using numerical modeling have been found from solving a three-dimensional problem for two caverns. As an example demonstrating the possibilities of the developed program, we have considered the geometry of two existing caverns (No. 3 and 5) in the South Melville saline formation, ass. to data in [1].

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