

SOLUTION MINING RESEARCH INSTITUTE

679 Plank Road
Clifton Park, NY 12065, USA

Telephone: +1 518-579-6587
www.solutionmining.org

Technical
Conference
Paper



A new geophysical method to better image the steep flanks of salt diapirs

Sandro John¹

¹K-UTEC AG Salt Technologies, Sondershausen, Germany

Anke Schindler¹

Dr. Markus Brüning¹

Tobias Brestrich¹

Ronny Köhler¹

Marinus den Hartogh²

Martijn ter Braack²

²Nobian Industrial Chemicals B.V., Van Asch van Wijckstraat 53, Amersfoort, The Netherlands

**SMRI Spring 2024 Technical Conference
22-23 April 2024
Krakow, Poland**

Solution Mining Research Institute Spring 2024 Conference
Krakow, Poland, 22-23 April 2024

A new geophysical method to better image the steep flanks of salt diapirs

Sandro John¹, Anke Schindler¹, Dr. Markus Brüning¹, Tobias Brestrich¹, Ronny Köhler¹,
Marinus den Hartogh², Martijn ter Braack²

¹K-UTEC AG Salt Technologies, Am Petersenschacht 7, 99706 Sondershausen, Germany
Email: Sandro.John@k-utec.com

²Nobian Industrial Chemicals B.V., Van Asch van Wijkstraat 53, 3811 LP Amersfoort, The Netherlands

Abstract

Steep slopes of salt diapirs are typically very hard to image by traditional seismic exploration methods. As part of a project with the Dutch salt cavern field operator Nobian, the Geophysics department of K-UTEC Salt Technologies has now introduced a new method that allows to map the steep geometry and flanks of salt domes more precisely than before. For this, we are using a combination of hybrid VSP and surface seismics, two methods well known from oil & gas exploration. The two methods complement each other in their strengths. The improved imaging results in significant advantages for salt cavern operators: The more precisely the geometry of the salt body is known, the more effectively salts can be extracted, making better use of the hitherto complicated flank areas. Subsequently, this also creates more underground storage capacity. As a result, efficiency and sustainability of salt mining is increased and the production costs of mining and storing energy sources are reduced, without increasing the risks. Also risks and uncertainties surrounding existing out of production caverns can be minimized.