

A STATUS REPORT ON THE SOLUTION MINING RESEARCH INSTITUTE CAVERN SEALING AND ABANDONMENT PROGRAM

By

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ABSTRACT

The Solution Mining Research Institute (SMRI) has long recognized that there are uncertainties associated with Cavern Sealing and Abandonment (CS&A), and in 1996, initiated a long-term research program focused on the issue. The SMRI CS&A Research Program started with the formation of an Advisory Committee with a broadly based membership that includes cavern operators, researchers, and regulators. Cooperative funding for some of the research efforts was obtained from the United States Department of Energy.

The program initially focused on an assessment of exactly what is known in the scientific and commercial communities regarding cavern sealing and abandonment. This initial effort resulted in a comprehensive bibliography of the understanding and practice of cavern sealing. Following completion of the bibliography, the SMRI CS&A Research Program issued a series of Requests for Proposals (RFPs) to pursue research in the key areas of uncertainty. Contracts were awarded to study (1) salt permeability under complex stress states, (2) hydraulic and mechanical integrity of the well casing shoe through bench-scale testing, and (3) geomechanical modeling of fluid/salt hydraulic and mechanical interaction in a sealed cavern. Much of this work is complete and in the process of being reported to the SMRI. The current work focuses primarily on caverns in domal salt. Issues associated with bedding will also be addressed in the program.

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