

SPECIALIZED TECHNIQUES IN
SOLUTION CAVERN
SHAPE CONTROL

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The title seemed suitable a few weeks back when I agreed to present this paper. As it has evolved, a better title for it would be "Eight Ways to Lose Control of Cavern Shape", since we are going to look at eight caverns illustrating various ways of going astray, with those problems divided into eight categories.

To minimize the time spent flopping transparencies around, this presentation is organized by cavern, rather than by problem; each cavern illustrates two or more ways to lose control.

These are real caverns with real flaws. Some of my assertions are from first-hand experience, while others are conjecture. These serve to illustrate valid problems even if I have guessed wrong in a case or two. The caverns are all located in several Gulf Coast Salt Domes. Only the names have been changed to protect the guilty.

In order to control cavern shape, we need to know what our goals are. This paper is based on the intention to preserve cavern stability, integrity, and utility. A stable cavern is not too large or too close to caprock to support overburden weight. It should not be allowed to lose integrity by encountering other caverns or the edge of salt in any direction. If its function is brine production, a cavern should produce brine within specifications. Suitability for immediate or future storage service should be preserved: No traps, no interference with suspended strings, no unstable ledges.
