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PRESSURE BUILD-UP IN A SEALED CAVERN: THE EFFECT OF A GAS BLANKET

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ABSTRACT

In a paper presented during the Rapid City SMRI 2006 Fall Meeting; the authors suggested that, before abandonment, a small quantity of gas be injected in the cavern to increase cavern compressibility and to prevent pressure build-up from being too severe. This solution proved to be robust in that a gas leak can be beneficial, making pressure build-up even slower than when gas remains trapped in the cavern.

Here, a 100,000-m³ gas storage cavern is studied. The cavern is filled with soft water before being abandoned, and the temperature gap between the rock mass at cavern depth and the cavern brine is large. The amount of gas to be injected in the cavern prior to abandonment and the effect of a possible gas leak are discussed.

Keywords: Abandonment, Cavern Plugging