

عنوان مقاله:

New developments in the gas first fill operation of natural gas storage caverns

محل انتشار:

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خلاصه مقاله:

The first-fill of natural gas storage caverns involves simultaneous gas injection and brine displacement. With the standard completions used for this purpose in Europe, this operation can sometimes take more than a year depending on the size of the cavern. This length of time is largely attributable to the need to subsequently snub the brine displacement string under pressure, and the mandatory stipulation to install a safety shut-off valve. The first-fill time can however be significantly reduced by departing from the use of standard completions, and especially by installing a bigger debrining string. The benefits and risks of this advancement depend on parameters such as cavern size, height and pressure range. Constraints also involve the capacities of the gas supply, brine disposal, gas compressors and brine disposal pumps, as well as limits to the flow velocities of gas and brine. Modifications have to be compatible with the existing gas completion system of the cavern, and must guarantee conditions for safe snubbing operations. The paper presents the conventional gas first fill process in comparison to the new developments. Based on practical experience with this new development, significant time savings, and therefore earlier commissioning of the cavern can be reported. The technical and economic aspects are also discussed

کلمات کلیدی:

Underground storage in salt formations, Natural gas storage, Gas first fill, Gas completion for salt caverns

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