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Use of Sonar Surveys for Planning Conversion of Brine Wells to Gas Storage Caverns

Qu Danan and Wei Donghou

Underground Storage Management Department, West-East Gas Pipeline Company,
Petrochina, Shanghai, China

Abstract

Salt caverns in the area of Jintan were identified for use as an underground gas storage facility. Following approximately 15 years of brine solution mining, more than 40 salt caverns have been constructed. In order to convert the first caverns to gas storage as soon as possible, Petrochina is engineering possible conversion of brine caverns to gas storage use. The cavern selection process utilized sonar surveying, preliminary geology, drilling and logging data, and geomechanical stability analysis. Sonar data was also used in the technical program for brine well remediation and cavern shape modification, and for integrated assessment of cavern stability. After the brine wells were reconstructed, a second sonar survey was performed to determine precise data for the caverns. The sonar measurements were then used to model the parameters of planned natural gas injection and storage.

Key words: China, brine cavern, gas cavern, sonar survey technique, gas storage