

Appraisal Method for Gas Storage Constructions Based on Existing Salt Caverns

Tian Zhonglan¹ Yuan Guangjie^{1,2} Shen Reichen¹ Li Jingcui¹

1. Research Institute of Drilling Engineering, CNPC, Beijing 100097, China

2. CMOE Key Laboratory of Petroleum Engineering in China University of Petroleum, Beijing 102249, China;

Abstract:

To build gas storage on the basis of development and utilization of the formed old salt cavern in salt mine is a kind of fast and effective technique (besides picking up the speed of building new salt cavern). The construction based on old salt cavern can not only shorten the construction cycle, but also reduce the construction cost. So, based on the consideration of gas storage requirement and characteristic of old salt cavern, the geological conditions and cavern conditions of existent gas storages which were built on old salt cavern were brought forward. The existing old salt cavern construction projects were discussed. A full set of appraisal methods and analysis technologies for the construction of old salt cavern gas storage were established, including sonar inspection and statistics analysis technique, cavern mechanical stability appraisal technique, appraisal method on social and economic performance, etc. Meanwhile, JINTAN salt mine was taken as an example to conduct a series of discussions and evaluations. Up to now, the method has been applied in the "West-to-East Natural Gas Transmission Project" for the salt cavern reconstruction.

Key words: Caverns for Gas Storage; Instrumentation and Monitoring; Salt Domes

©2022 – Solution Mining Institute
Full Paper is Available in the SMRI
Library(www.solutionmining.org)