Solution Mining Research Institute Spring 2010 Technical Conference

Leipzig, Germany, 3 - 6 October 2010

SOLUTION MINING AND INJECTION-PRODUCTION TECHNOLOGY OF GAS STORAGE IN DEEP SALT BED

Ban Fansheng and Yuan Guangjie and Shen Ruichen

CNPC Drilling Research Institute, Beijing, China

Abstract

Gas storage in about 2000m deep salt bed is difficult to construct. One of the main reasons is that high formation pressure makes both solution mining and gas injection-production more difficult. Some technology of gas storage construction in deep salt bed is different from those in shallow salt bed. Many solution mining and injection-production technology need to be researched. How to construct gas storage in deep salt bed is the concern matter.

Firstly, many problems are presented in the process of gas storage construction in deep salt bed, and the causation is analyzed. Secondly, the construction technology of gas storage in deep salt bed are presented with three aspects of drilling and completion, solution mining, gas injection-production. For gas storage construction in about 2000 deep salt bed, hole deviation and cement job quality need to be controlled strictly in the process of drilling and completion, and the requirements of solution mining technology and equipment are higher in the process of solution mining. In addition, salt rock creep is apparent due to high formation pressure. If unreasonable cavity operating pressure is selected, cavity volume will be reduced largely in the process of gas injection-production . Finally, some suggestions are put forward about how to construct gas storage in deep salt bed. If the mentioned measures in the paper are adopted, it is helpful to construct gas storage in about 2000m deep salt bed.

Key words: Caverns for Gas Storage, Salt Rock, Drilling and Completion, Solution Mining, Injection-production