



Contribution ID: 395

Type: Oral Presentation

Production dynamic prediction and injection production efficiency optimization simulation of depleted gas storage reservoirs

Thursday, 16 May 2024 10:05 (15 minutes)

In the construction and operation of depleted gas reservoirs underground gas storage, the block pressure, effective storage capacity, injection and production capacity, and operating cycle are key issues that reflect the storage efficiency of gas storage facilities. This article is based on the geological and structural characteristics, geometric characteristics, and physical properties of a sandstone reservoir in a gas storage facility in Liaohe Oilfield. Combining logging data and production performance data, a joint back analysis method for storage performance parameters is proposed to establish a three-dimensional fine geological model that can comprehensively reflect the construction and operation characteristics of the gas storage. By fitting the production dynamic history, the block pressure and single well pressure variation characteristics were simulated, and the model can effectively invert the changes in block pressure and single well pressure of the reservoir during 30 years of oil and gas production and 9 years of operation as a gas storage facility. On this basis, the model was used to predict the production dynamic operation of the gas storage, simulate the effects of injection and production rate, well network deployment, and injection and production cycle on the block operating pressure and oil-gas-water interface migration characteristics, and the upper limit of the effective storage capacity of the gas storage was predicted. This research achievement has guiding significance for exploring the operating rules of gas storage, analyzing storage capacity parameters and operational dynamics, and formulating reasonable working systems for injection and production wells.

Acceptance of the Terms & Conditions

[Click here to agree](#)

Student Awards

Country

中国

Porous Media & Biology Focused Abstracts

References

Conference Proceedings

I am interested in having my paper published in the proceedings.

Primary author: Mr FENG, Hao (Northeastern University)

Presenter: Mr FENG, Hao (Northeastern University)

Session Classification: MS01

Track Classification: (MS01) Porous Media for a Green World: Energy & Climate