عنوان مقاله:

Ranking of Candidates for Underground Gas Storage Structures under Uncertainties Using Flow Simulation: West of Iran as a Case study

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خلاصه مقاله:

Underground gas storage is the primary means of managing fluctuations in supply and demand, and it is an essential component of an efficient and reliable interstate natural gas transmission and distribution network. Therefore, identifying gas storage capacity, injectivity, and containment is very important in every underground gas storage (UGS) project. Already, a giant scheme in Iran for identifying, ranking, and certifying UGS reservoirs has been carried out through the country. In this study, a methodology for a fast screening and risk ranking of candidate reservoirs, which in principle does not discard the green and slightly small reservoirs with few wells, is demonstrated. First, four structures out of more than twenty given structures were selected according to the client's comments. Then, the performance of these candidate structures as the main focus of this study was determined. For performance analysis, the flow simulation method that can be characterized by the uncertainty conditions influencing deliverability behavior was applied. Based on the available data, the main uncertainty parameters (static, dynamic, and economic) affecting capacity, injectivity, and containment were determined. Then, based on designing many wells as a producer and as injectors, the distribution probability of deliverability of structure under different uncertainty was identified. Finally, the performance and the risk of each candidate structure were analyzed and compared, and then they could be ranked and proposed for further detailed implementation.

کلمات کلیدی:
Underground Gas Storage, Ranking, Flow Simulation, Uncertainty

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