عنوان مقاله:

Application of Tabu Search Algorithm for determining the Bourgoyne and Young Model Coefficients

محل انتشار:

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خلاصه مقاله:

In drilling industry, the first well which is drilled in a field has the maximum cost because of lack of information and applying non-optimal parameters. But by drilling more wells and obtaining more information about field and optimization on field data for selecting optimal parameters, the rate of penetration increases and cost decreases. Therefore, find a relationship between drilling parameters to predict rate of penetration is very important and valuable. The most complete rate of penetration model was proposed by Bourgoyne and Young in 1974. This model consists of eight independent function and there are eight unknown constants in this model. Bourgoyne and Young recommended multiple linear regression method for determining these constants. But applying multiple linear regression leads to out of range and physically meaningless values in most of situations. In this study, in order to reach more accurate and physically meaningful coefficients, Tabu Search Algorithm is used to determine constant coefficients of Bourgoyne and Young model using offset well data and then using this model for prediction of rate of penetration in a new well. Wells are located in South Pars Gas Field. Results show the proficiency, accuracy and fast convergence rate of this method to determine Bourgoyne and Young model constants.

کلمات کلیدی:

Rate of Penetration, Bourgoyne and Young, Multiple Linear Regression, Tabu Search Algorithm

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