

## عنوان مقاله:

Determining Reservoir Parameters from Two Phase Naturally Fractured Reservoirs Well Test Analysis, Unsteady State Flow Regime, Considering Wellbore Storage Effect-TDS Technique

## محل انتشار:

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## نویسندگان:

m Behnood - *Department of Chemical-Reservoir Engineering, Amirkabir University of Technology*

m Vahedi Pour

m Dadvar

## خلاصه مقاله:

The main objective of this paper is to present a practical interpretation of the pressure behavior of two phase oil and water naturally fractured reservoirs. Well test estimates the reservoir parameters by studying flow regimes which are observed during production. From starting of production first radial flow regime, transient period and secondary radial flow regime will be observed. But by existing of well-Bore-Storage effect during production, the first radial flow regime will be disappeared, so conventional and type curve methods which are based on using all flow regimes are useless. Synthesis Direct method is a new technique that solves the problem by developing simple equations. This technique couples the characteristic points and lines from log-log plot of pressure and pressure derivative data resulting in simple equations to solve for the desired reservoir parameters. In this technique there is no need to observing all flow regimes. On the other part the matrix-to-fracture interporosity parameter ( $l$ ), and fracture storativity ( $w$ ), are subject to changes during the life of an oil field. This depends entirely on the nature of saturation condition both in fractures and matrix blocks. Failure to consider two phase flow parameters will result in inaccurate estimation of reservoir parameters. Because of the high amount of this type of behavior in many reservoirs worldwide, developing appropriate method is very important. In this paper the effect of wellbore storage is analyzed on log log pressure and pressure derivative curve vs. time for a single well in the two phase oil and water naturally fractured reservoirs with unsteady state flow regime. Application of direct synthesis technique is presented for this case and several correlations is offered for calculation of reservoir parameters. Finally the capability of technique and the accuracy of the equations is studied through simulated test example

## کلمات کلیدی:

Well Test; Naturally Fractured Reservoirs; Twophase Oil-Water Flow; Unsteady State Regime; Synthesis Direct Technique, Wellbore Storage Effect

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