

2<sup>nd</sup> World Congress on

## PETROLEUM AND REFINERY

June 01-03, 2017 Osaka, Japan

**Modeling the operation of complex trajectory oil and gas wells in the steady state****Sergey K Sokhoshko**

Tyumen Industrial University, Russia

**Statement of the Problem:** Presently when drilling horizontal wells the length of a wellbore traced through the producing formation can stretch many hundreds of meters. In order to calculate productivity of such well and its separate intervals it is very important to know the fluid to the wellbore inflow profile, inflow rate along the wellbore as well as pressure drop along the wellbore. The objective of this study is to obtain a technical solution and to develop a calculation technique which would allow calculation of the above operation parameters for steady state of both oil and gas wells with complex trajectories.

**Methodology & Theoretical Orientation:** The point source method was used to simulate perforations in the wellbores of both oil and gas wells in order to calculate the mode of operation of a complex trajectory well. A calculation result for a fixed flow point source in a formation with impermeable top and bottom and available external reservoir boundary (injection wells) was obtained using results of calculations of the fixed flow point sources in an infinite formation in addition to the infinite imaging method relative to the top and bottom of formation.

**Findings:** Productivity of a complex trajectory well as well as the profile of fluid movement to the wellbore depend on the well trajectory, type of bottom hole completion and producing formation parameters, which have to be taken into account both in well planning as well as in field development design stages.

**Conclusion & Significance:** The designed technique allows to calculate the productivity in complex trajectory wells and in its separate intervals, pressure drop in the wellbore, increases in the oil and gas flow rates, as well as to calculate an optimum length of horizontal section of the wellbore and its trajectory through the producing formation.

**Biography**

Sergey K Sokhoshko has defended his PhD thesis at the Tyumen State Oil and Gas University (Russian Federation). Currently, he is a Professor of the Department of Oil and Gas Fields Development and Production. He specializes in modeling of oil and gas wells with complex trajectories, as well as hydraulic fracturing.

sksohoshko@mail.ru

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