# An investigation on production optimization in a gas reservoir: prospective analysis of Habiganj gas field well no-06

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## Abstract (300 word limit)

A number of factors such as reservoir pressure, well configuration and surface facilities affect the overall performance of gas reservoirs well as its sensitivity analysis and gas production optimization. Nodal analysis is an optimization technique which can be used to improve the performance of HBJ-06 well from the Habiganj gas field by optimizing its gas production capacity. HBJ-06 is one of the major gas producing well of Habiganj gas field which producing 14.963 mmscfd natural gas. Nodal analysis technique identifies each component as a resistance in the system starting from reservoir to the outlet pressure of the separator while analyzing inflow performance relationship (IPR) and vertical lift performance (VLP) for vertical wellbore. Following nodal analysis F.A.S.T. Virtu Well™ suggested the decline of wellhead pressure about 1300, 1200, 1100 and 1000 psi(a) without any change of the tubing diameter and skin factor hence, daily gas production capacity is optimized to 38.481, 40.993, 43.153, and 46.016 mmscfd, respectively. It is also demonstrated that the optimized condensate gas ratio is 0.07, 0.06, 0.06 and 0.05 as well as the optimized condensate water ratio is 0.11, 0.10, 0.09, and 0.08 respectively.

Keywords: Nodal analysis, Gas production optimization, IPR, VLP, Habiganj Gas Field, Bangladesh.

## Image

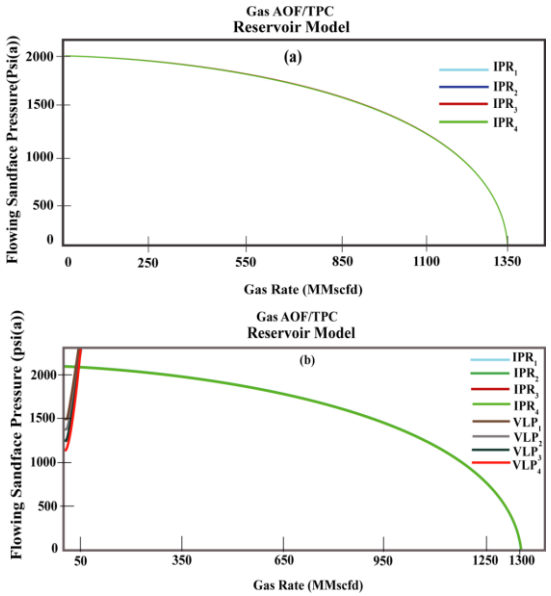



**Figure 1:** (a) IPR curves ;(b) IPR-VLP curves, for HBJ-06 well using AOF/TPC analysis Reservoir Model, Habiganj gas field, Bangladesh. Abbreviations: $IPR_1$, $IPR_2$, $IPR_3$and $IPR_4$, first second, third and four inflow performance relationship (IPR) curves; $VLP_1$, $VLP_2$, $VLP_3$and $VLP_4$ vertical lift performance (VLP) curve of A, B, C and D tubing.

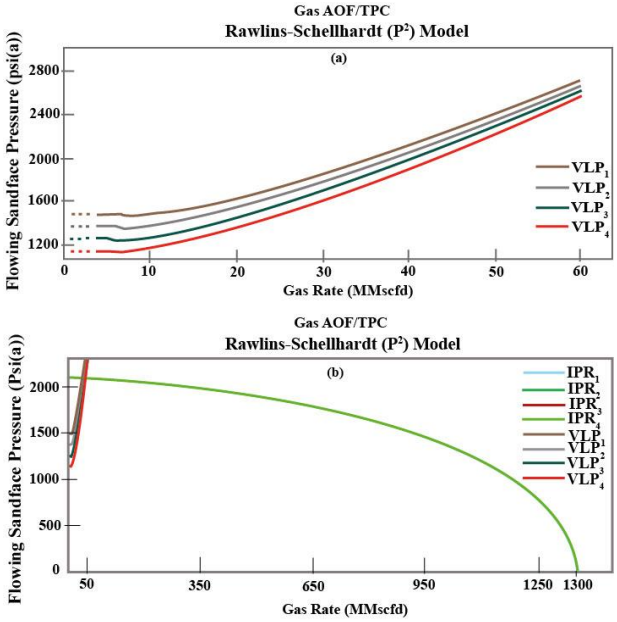



**Figure 2:** (a) VLP curves; (b) IPR-VLP curves, for HBJ-06 well using AOF/TPC analysis Rawlins-Schellhardt ($P^2$) Model, Habiganj gas field, Bangladesh. Abbreviations: $VLP_1$, $VLP_2$, $VLP_3$ and $VLP_4$, vertical lift performance (VLP) curve of A, B, C and D tubing; $IPR_1$, $IPR_2$, $IPR_3$and $IPR_4$, first second, third and four inflow performance relationship (IPR) curves.

## Recent Publications (minimum 5)


1 Shah, M.S., Hossain, H.M.Z. (2015). Evaluation of natural gas production optimization in Kailashtila gas field in Bangladesh using decline curve analysis method. Bangladesh Journal of Scientific and Industrial Research, 50(1):29-38.

2 Shah, M.S., Hossain, H.M.Z., Kazal, S. U., Tahsin, Rahman,S. W., Das, J.(2014). Assessment of unconventional gas recovery from Kailashtila gas field, Bangladesh. Journal of Life and Earth Science,9:63-71




## Biography


Md. Shaheen Shah is serving as the Lecturer of the department of Petroleum and Mining Engineering in Jessore University of Science and Technology, Bangladesh. He is interested in research like reservoir engineering, drilling engineering, production engineering and enhanced oil recovery. Additionally, he is also holding the Assistant Director (Students Counseling and Guidance) in Jessore University of Science and Technology, Bangladesh. Mr. Shah is the founder and Executive Director of Socio-Economic Development and Disability Rehabilitation Organization (SEDDRO), Bangladesh.

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**Notes/Comments:**