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Gas Lift Optimization to Improve Well Performance

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Abstract : Gas lift optimization is becoming more important now a day in petroleum industry. A proper lift optimization can reduce the operating cost, increase the net present value (NPV) and maximize the recovery from the asset. A widely accepted definition of gas lift optimization is to obtain the maximum output under specified operating conditions. In addition, gas lift, a costly and indispensable means to recover oil from high depth reservoir entails solving the gas lift optimization problems. Gas lift optimization is a continuous process; there are two levels of production optimization. The total field optimization involves optimizing the surface facilities and the injection rate that can be achieved by standard tools softwares. Well level optimization can be achieved by optimizing the well parameters such as point of injection, injection rate, and injection pressure. All these aspects have been investigated and presented in this study by using experimental data and PROSPER simulation program. The results show that the well head pressure has a large influence on the gas lift performance and also proved that smart gas lift valve can be used to improve gas lift performance by controlling gas injection from down hole. Obtaining the optimum gas injection rate is important because excessive gas injection reduces production rate and consequently increases the operation cost.

Keywords : optimization, production rate, reservoir pressure effect, gas injection rate effect, gas injection pressure
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