



Optimization of separator pressures in Marun oilfield with genetic algorithm

Nasser Faraz¹, Misagh Mansoori Ghanavati², MohammadReza Zohrabi³

Ahvaz, Brumi, Marun oil and gas Production Company

faraz.n@nisoc.ir

Abstract

In the oil production industry one of the most important targets is to produce maximum oil volume. Because of the oil pressure drop in the production plants, remarkable volume of oil reduced due to the dissolved gas extraction from liquid. To reduce this volume reduction of oil, some separators with optimum pressures are needed. So the main objective of this paper is to determine these desired pressures. For approaching this idea a MATLAB program has been written that using the modified Peng Robinson equation of state for phase calculation and optimize the pressures by GA (Genetic Algorithm). This program was validated by experimental data of separator test and then used PVT data of one of the Iranian Oilfield (MARUN) to optimize its separators pressures. For accurate simulation and data analysis, the PR EOS parameters were tuned by PVTi software and the modified parameters were used in program. The results show that the recovery has improved by pressure optimization. Also the effect of temperature was investigated, that shows the recovery increases by lowering temperature. As a result the recovery improving to about 0.4% that introduced 2000 bbl/day more recovery of oil in stock tank. It has 200000 dollars per day more income.

Key words: EOS, GA, pressure optimization, PVT

¹Engineer, National Iranian South Oil Company

²Engineer, National Iranian South Oil Company

³Project Leader, National Iranian South Oil Company