Abstract

Objectives/Scope: Achieving underbalance condition in a wellbore is the fundamental rule to allow well’s flowback. In the modern oil and gas industry, this is mainly realized through coiled tubing Nitrogen lifting. Due to the high cost of coiled tubing operation, a more economical feasible solutions have to be founded. In essence, this paper will discuss two alternative approaches where underbalance condition was established by reducing the fluid column height leading to successful well flowback.

Methods, Procedures, Process: First method consists of reversing a well control concept of systematically bleeding wellhead pressure while circulating a kick to allow for gas bubble expansion to reduce its pressure. Since the objective is well unloading, cycling the choke open to allow a kick to enter the wellbore and then close it which will enable the kick to migrate upward with the same reservoir pressure. Second method is to utilize slick line swab cups. A low budget slick line operation commonly used to retrieve oil from wells with low reservoir pressure that the hydrostatic column of oil will kill the well.

Results, Observations, Conclusions: Choke manipulation is the key of success of the first method which includes a well-defined process and sequence of choke opening and closing until achieving the desired underbalanced condition. Maximizing the recovery of high-density fluids during each bleed-off is the ultimate goal in order to reach reduce the wellbore hydrostatic and hence achieved well flowback with fewer steps of choke manipulations. As soon as the high-pressure bubble reaches shallower depth, opening the choke suddenly allows the bubble to burst ejecting high-density fluid from the wellbore. The prevailing overbalance in each well will play a major role in designing a specific strategy of chock manipulation. The slickline swab cups will physically collect and remove a certain quantity of wellbore high-density fluid and therefore the hydrostatic pressure is reduced. Due to the low cost of such operation, it can be repeated as many times as required until having the reservoir pressure at higher level than the fluid column above it which hence allow the subject well to produce. Modifying the current use to a different purpose is suggested to achieve great cost reduction and in a much faster time while meeting the same objective.

Novel/Additive Information: To ensure economical suitability and operational success, process must be tolerated for each candidate. Primarily, recognizing reservoir potential and fluid will help in better development of well control unloading
technique. Also, the disposal of fluid as in some cases the wells may contain corrosive and/or toxic fluids. Thus, candidate selection criteria have to be established. Finally risk management studies and precautions must be determined beforehand.